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COMMEMORATION DAY.

The Eighteenth Anniversary of the Johns Hopkins University was commemorated on Thursday, February 22, 1894. By the courtesy of the Trustees of the Peabody Institute, the public exercises were held in the large Hall of the Institute.

The Trustees and the Faculty, with the Invited Guests and the Alumni and Students, assembled at the University buildings at half-past ten o'clock and went in procession to the Institute.

The exercises opened with Music: Concert Overture in C major, by L. van Beethoven.

Rev. C. G. CURRIE, D. D., Rector of Christ Church, offered the following invocation, the assemblage joining in the repetition of the Lord's Prayer:

Almighty God, Father of all mercies, we, thine unworthy servants, do give thee most humble and hearty thanks for all thy goodness and loving kindness, both spiritual and temporal. We bless thee for thine inestimable love in the redemption of the world by our Lord Jesus Christ, for the means of grace, and for the hope of glory. We magnify thy holy name for all the blessings of this present life, and for the revelation of thy power and Godhead by the things that are made, rejoicing the heart, and giving light unto the eyes. We thank thee for that thirst for learning that is among thy richest gifts to men, and for the fountains of knowledge that thy Providence has placed among us, enabling thy people to love thee, with mind as well as soul. We thank thee for this school of learning in whose behalf we are assembled, for the beneficence with which it has been founded, for the honest sincerity of purpose with which it has been conducted, and for the fruitfulness and favor with which it has been crowned.

Bless we beseech thee its board of trustees, that all things may be so ordered by their endeavors, that religion and piety, truth and the love of it, justice and the practice of it, may be established among us for all generations. Bless, we ask of thee, the President and Faculty, to whose stewardship thou hast entrusted the work of teaching. May their minds be enlightened with a love of the truth, and their hearts be steadfast and unmovable, knowing that their labor is not in vain in the Lord. Bless with thy favor those who have been instructed in this school of learning, and are now engaged in those duties of life to which thy Providence has called them. Bless those who this day go forth to their labor until the evening. Strengthen them with thy grace, that they may fight the good fight; cover their head in the day of battle against the devil, the world and the flesh, and crown them finally with the incorruptible inheritance that fadeth not away. Bless those now under instruction with the graces of humility, industry, and the spirit of perseverance in the improvement of the several talents wherewith thou hast entrusted them. Defend them with thy heavenly grace, that they may become and continue thine for ever, and daily increase in thy Holy Spirit. Send thy blessing, Heavenly Father, on all who are here assembled. Pardon our many sins. May it be the work of our life to obey thee, the joy of our soul to please thee, and the perfection of our desires to live with thee, in the Kingdom of thy grace and glory, through Jesus Christ, our Lord, who hath taught us when we pray, to say: Our Father, who art in Heaven, hallowed be thy name. Thy kingdom come. Thy will be done on earth, as it is in Heaven. Give us this day our daily bread. And forgive us our trespasses, as we forgive those who trespass against us. And lead us not into temptation; but deliver us from evil: for thine is the kingdom, and the power, and the glory, forever and ever. Amen.

The hymn, "Lord of all being! throned afar," by Dr. Oliver Wendell Holmes, was sung in unison by the assembly, to the tune of "Mendon," under the leadership of a chorus of students.

An address was then delivered by Professor Bloomfield.

A CENTURY OF COMPARATIVE PHILOLOGY.

AN ADDRESS BY MAURICE BLOOMFIELD, PH. D.,
Professor of Sanskrit and Comparative Philology.

The sun and the moon as they rise above our heads become related to us in a manner which is almost personal. There is no possibility of mistaking the influence of the two chief heavenly bodies upon our daily life. With time, the infinite conception which the philosopher tries hard to grasp, even the sun and the moon count for nothing. But time, moth-eaten time, father time, our time, of that time sun and moon are the very ribs. The day and the night, the dark period of the moon and the bright period, the solar and the lunar year, these categories are our own as much as the atmosphere which envelops our earth. The prehistoric Aryans recognized this relation more dramatically than we do now; they imagined the sun and the moon as two dogs in the heavens, coursing across the sky, and beating about for their daily victims, the men who pass away. And shifting the attitude of their minds the least bit they imagined the same two heavenly dogs taking turns as escorts in charge of the mortals who had led good lives, conducting them to their glorious destination. And, again, with another little turn of the kaleidoscope, the two dogs are watch-dogs, lurking on the road to heaven, very fierce and bloody-mouthed, and lucky is the mortal who succeeds in running past them. These ideas are stated plainly in the Rig-Veda, the Hindu bible, and the mangled remains of the myth are well-known to all of you in the Greek myth of Cerberus, the watch-dog at the door of Hades.

The day, and the month, and the year, then, are natural, necessary divisions of time; and, as far as I can see, we derive scant comfort from their persistent presence. They are at once too remindful, too retrospective, and too prospective. They leave not room enough for a peaceful altruistic enjoyment of the present. Who, now, is sitting here to-day that does not feel that the count of time bids him make haste unduly; that it heightens the pulse to a feverish degree, and robs him of many a spell of placid, peaceful repose?

But if we must put up with these necessary time distinctions, there being no escape from them, why do we human beings ourselves create others in addition? There is nothing in the skies above, or upon earth below, which necessitates the division of time by centuries. The century is an institution pure and simple. A hundred is a large unit of time chosen arbitrarily by primitive man, at a time when it would have been equally or more convenient to have chosen another large number, say 60 or 144. The only excuse for the decimal system are the ten fingers. Traces of a system of count by 60 instead of 100 are found abundantly in the early history of man. At any rate the century is a mere scheme, a phantasm, and that, too, a disturbing phantasm. As we approach the dividing line between the 19th and 20th centuries it assumes in our minds the reality which makes for the school-boy the equator a black girdle around the waist of the earth—and he wonders how the ships get across! And many will ask themselves what century they belong to, answering regretfully that they are with the old, and not the new. Perish the gruesome thought! We should not permit our lives to be divided and conquered by a mere fancy. And what is this we hear about the senile, moribund century? And who is the specious Frenchman who created the word fin de siècle with its suggestion of surfeit, and absence of virile enthusiasm? It is idle fancy, sheer nonsense. The century was not very decrepit when Columbus discovered America, and when the French Revolution relaxed the grasp of despots; and, thank heaven, ours shall die in the traces, alert, active, progressive unto its last gasp. Some of the greatest deeds of history happened at the seam between two centuries; many of the greatest lives have stretched across from one century into the next.

Not the least among great deeds is the rise of the science of Comparative Philology at the end of the last century and the beginning of our own. If you ask for an exact date, I am at a loss. There is a pretty quarrel between the English and the Germans as to who discovered Comparative Philology—the final outcome being that neither of them did it. English scholars claim that Sir William Jones announced the discovery in 1786 in his inaugural address as president of the Asiatic Society at Calcutta. The Germans regard a much later date, 1816, the year when Francis Bopp produced his first systematic treatise on the comparative grammar of the Indo-European languages as the hegira of Comparative Philology. But a French missionary, Father Coerdoux, reported in 1767 to the French Academy comparisons between words and grammatical forms in Sanskrit, Greek, and Latin, so just and so extensive as to entitle him quite as well to the name of discoverer. In truth there was no discovery. Every missionary who had learned Sanskrit in past centuries was startled by the cardinal points of resemblance between it and the European languages, and became in a sense a discoverer. There is, however, a plenty of propriety in speaking of a hundred years in round numbers. A hundred years carry us back to the heroic age of the science, the days of Sir William Jones and Colebrooke, of Rask and Jacob Grimm, of Frederic von Schlegel and William von Humboldt, of Bopp, Pott, and Burnouf; and I regret that my canvass to-day is too small to permit me to sketch even a faint outline of these men, their aspirations, and their achievements. Anniversaries are plentiful and will be plentiful because men have never ceased to produce good and memorable things, nor ever will. From now on every year will recall to the memory some splendid accomplishment of these masters of a hundred years ago.

But the present somehow distracts our attention. During the past year two of the greatest living scholars in Vedic and linguistic science have celebrated their doctor jubilees. Fifty years have elapsed since Max Müller and Rudolf von Roth received their degrees from German universities, and, take it all in all, each now has behind him a career glorious enough to satisfy the ambition of any reasonable mortal. Max Müller, more than any other man, gained for these studies the sympathy of the cultured public; he has, too, as much as any other single writer, helped to liberalize and beautify the thought of our generation. Rudolf von Roth was the first interpreter of the Veda, and one of the two authors of the unrivaled Sanskrit lexicon of the Academy of St. Petersburg. Scholars from all parts of the world have united in honoring his festal day by printing a jubilee volume in his honor, and you will be interested to hear that four American scholars have contributed to this volume, more than from any other country outside of Germany herself. During the past year, too, the American Oriental Society, one of the oldest scientific associations in the country, lived to see its fiftieth birth-day, sounder and more active than ever; its fifteen bulky volumes of proceedings and transactions rank among the most valued contributions to linguistic and Oriental science.

But a literary event of even greater importance has happened within the last two or three months—an event which is certain to stir the world of science and culture far more than beatific reminiscences. Some ten weeks ago I received from India a small duodecimo volume, in the clumsy get-up and faulty typography of the native Anglo-Indian press. It came with the regards of the author, a person totally unknown to fame. I had never heard his name: Bāl Gangādhār Tilak, B. A., LL. B., Law Lecturer and Pleader, Poona. The book is published by Mrs. Rādhābāi Ātmārām Sagoon, Bookseller and Publisher, Bombay. The title is "*The Orion, or Researches into the Antiquity of the Vedas.*" It will be understood that the entrée of the little volume upon my horizon was not such as to prejudice me in its favor, and accordingly I placed it where it might be reached without too much effort in the drowsy after-dinner hour, to be disposed of along with much other second-class matter, such as reaches a scholar through the channels of the Postal Union. Nor was the preface at all encouraging. The author blandly informs us that the age of the Rig-Veda cannot be less than 4000 years before Christ, and that the express records of early Hindu antiquity point back to 6000 before Christ. Having in mind the boundless fancy of the Hindu through the ages, and his particularly fatal facility for 'taking his mouth full' when it comes to a question of numbers, I proposed to myself to continue to turn the leaves of the book with the amused smile of orthodoxy befitting the occasion. But soon the amused smile gave way to an uneasy sense that something unusual had happened. I was first impressed with something leonine in the way which the author controlled the Vedic literature and the occidental works on the same; my superficial reading was soon replaced by absorbed study, and finally, having been prepared to scoff mildly, I confess that the author has convinced me in all essential points. The book is unquestionably the literary sensation of the year just before us; history, the chronic readjuster, shall have her hands uncommonly full to assimilate the results of Tilak's discovery and arrange her paraphernalia in the new perspective.

But let me first say a few words as to the chronology of ancient Hindu history. This has always been a tender spot with the devotees of Indology. The Hindus themselves have no reliable chronology reaching back even as far as the Christian era, and their seclusion in ancient times from the rest of the world shuts out all light from without, with the single exception of Alexander's invasion of India. The only two dates in the ancient history of India which are approximately fixed are the date of Buddha about 500 B. C., and that of the inscriptions of the famous Buddhist Emperor, Açoka, about 250 B. C. Behind that lies the entire early Brāhmanical history of India, the period of the Vedas, without a single chronological landmark to guide and rest the eye of the investigator. The Vedic literature is vast, and it is stratified into different layers, according to the subject matter and the dialects in which it is written. These stratifications were made the basis of reckonings, and different scholars at different times advanced their beliefs, making the Vedic literature date back from 1200 to 2400 B. C. A middle point between these two dates, placing the earliest Vedic period between 1500–2000 B. C., gradually precipitated itself, and that has been the standard opinion of scholars during the past thirty years. One is struck at once by the extreme modesty of the claim in the light of the claims of other Oriental civilizations, notably the Egyptian, and it now seems as though it were destined that this abstemiousness shall no longer go unrewarded.

The Hindu lawyer Tilak's discovery is based upon astronomical data recorded in the Vedic literature. I have alluded in the opening to the two familiar rotations of the earth—the daily one around its axis and the annual one around the sun. The latter motion appears to the observer on the earth as if the sun moved once every year around the earth along the sphere of the heavens, among the stars. The motion among the stars is apparently regular and unalterable; every season, every month, every day of the year the sun, and correspondingly the moon, is to be found near the same star or constellation as in the preceding year. The curve along which the sun moves through the heavens is called the ecliptic, and the plain of this curve is inclined to the plain of the earth's equator 23½ degrees. The two points in the heavens at which the plain of the ecliptic intersects the plain of the equator projected into the heavens are the equinoxes, the vernal and the autumnal equinox. But the earth has still another motion. Owing to special manifestations of the attraction of the moon and the sun, the axis of the earth moves slowly around the axis of the celestial sphere, drawn perpendicular to the plain of the ecliptic, producing a gradual, very slow, retrograde motion of the equinoctial points in the heavens. In short the vernal equinox, and correspondingly the autumnal equinox, by scarcely perceptible degrees change their position in the heavens year by year, performing a complete revolution in the zodiac once in 26,000 years, in round numbers. This is called the precession of the equinoxes. The possible uses which history can make of this astral phenomenon are at once obvious. If it be recorded that any given event took place at a time when the vernal equinox, or any other cardinal point in the sun's ecliptic, stood in a given star or constellation, a very simple astronomical calculation suffices to fix absolutely the number of years which have elapsed between the position of the sun then and its position now. The huge cycle of 26,000 years precludes errors, because there cannot be in ordinary history question of more than parts of one single cyclic revolution. Tilak's method consists in carefully sifting the astronomical statements of the two most characteristic strata of Vedic literature, the period of the hymns, and the period of the so-called Brāhmaṇas, the time when the formal Vedic sacrifices were developed and rigidly defined, and he proves conclusively that the vernal equinox of the earliest period, the period of the Rig-Veda, was in the constellation of Orion, i. e. 4500 years ago, while in the second period the vernal equinox had receded to the Pleiades, pointing with equal certainty to about 2500 B. C. The strength of Mr. Tilak's investigation lies in the proofs which he adduces, that the intersection of the colures or heavenly meridians with the heavenly equator or ecliptic, or, in other words, the four cardinal points of the ecliptic, the vernal and the autumnal equinox, and the summer and winter solstices, correspond with these calculations. The Hindu Zodiac is not geometrical but practical; being divided roughly into 28 stations or constellations, as it were the milestones of the heavens; and each time when the vernal equinox is said to be in a certain constellation the summer solstice is found, as it should be, seven constellations further, and correspondingly, the two other cardinal points, the autumnal equinox and the winter solstice.

To clinch matters, about a month ago there came to hand the Jubilee-volume in honor of Professor von Roth, and in it there is an article by Professor Jacobi, of Bonn, in which he has determined by the same method, the precession of the equinoxes, the same two periods of Vedic chronology. He seems to have devised his method, and arrived at his conclusions, in total independence and ignorance of the Hindu's work. He finds the vernal equinox of the earliest period in the star λ Orionis, and the vernal equinox of the second period in the star η Tauri, the same results stated more precisely. Is there not something wonderful in this mode of record? No coins, no tablets, no architecture, no critical historian, nor even a garrulous chronicler; nothing but the fanciful exigencies of a religious ritual, imagining that its needs and desires are favored or obstructed by the stars, and recording that such and such religious events shall take place when the moon and the sun are among such and such stars—the unerring clock of the heavens has timed the events of the oldest Aryan antiquity. Needless to point out that even this curtain which seems to shut off our vision with 4500 B. C. may prove in the end a veil of thin gauze. The language and the literature of the Veda is by no means so primitive as to place with it the real beginnings of Aryan life. These in all probability, and in all due moderation, reach back several thousands of years more, and we seem now to have arrived at a time earlier than any which history has hitherto dared to notice. Good old Homer in this perspective is a mere youth, and Horace —he is quite fin de siècle.

I have for some time been endeavoring to answer the following question: What has been the meaning of this 100 years of Comparative Philology, and what is the secret of the fascination which these studies exercise over the minds of men? An unpractical line of study, difficult to extract bread and butter from, difficult to force one's way into, because it is surrounded by a hedge of languages, ancient and modern, every inch of the way rough with gnarled roots. Is it the fascination of the acquisition of languages for their own sake by way of sportive surmounting of obstacles? Very few would be in at the death in so dreary a sport. I hear occasionally some stalwart adherent of another science say, that the purpose of philology is to know a language and perchance enjoy its literature, and there is an end of the matter. He who studies Comparative Philology, or any philology, in this spirit, knows of it in the end—to use a simile of the Buddhist writings—as much as the spoon knows the taste of the soup which is eaten with it. Without attempting to define and classify the purposes of human endeavor at knowledge, I am sure we are on safe ground in claiming that a large part of this endeavor is justly engaged in finding out—if it possibly may find it out—the destiny of man in this world. The desire to know this is constitutional; it is in our blood; the right to endeavor to know it is axiomatic, indisputable. How shall we do it? By prognostications as to the future? The attempt has been made more than once, and has resulted in the drearily regular, inorganic, prophetic novel. Any such constructed future will come to pass on the same day when the invertebrate Volapük becomes a real language. There is nothing like the study of Comparative Philology to make one sure that the only institutions which really live are those which have grown up organically. What we may read of our destiny is every time written in the past. Imagine for a moment this knowledge cut off from the present generation. The result would be nothing short of a kind of savagery. We should reel through life paralytically. Our generation would be a solitary vessel of clay instead of being part of a finely wrought metal chain, alive and vibrating with the electric current of all the action and all the thought of by-gone ages; ineradicably instinct with the assurance of a growing and improving future. This, and not merely curious antiquarianism, is what has made all great recoveries of our past history really important practical events for the present and the future. The so-called renaissance, the revival of classical learning in the middle ages, brought with it the revelation of what men were and what they did under the influence of other faiths, and other impulses, in distant ages, with different ideals; in other words, it increased the knowledge of humanity; this and nothing more. It did not help to build a single railway or dig a single mine. Yet this recovery of a past, only partially lost, ranks to-day as a truly epoch-marking, transforming event in human life, rivaling in its direct bearing upon men's destiny the discoveries of steam and electricity.

I see in Comparative Philology another renaissance, the recovery of a greater and deeper history, an extension of our knowledge of the past into regions and times inaccessible to any other mode of research. The biography of the human race must like the biography of any individual begin with early youth; there is to be found the key to most of the riddles of later life. We must trace the origin and first growth of human thought in order to understand man; and language offers the best, most impartial, and incontrovertible testimony. Every word is a foot-print of thought, every expression a track of thought, and the comparative philologist is the path-finder. It is interesting to know from Greek literature that the Greeks believed in a watch-dog at the gates of Hades, but after all this is a mere curiosum until Comparative Philology reconstructs the pre-historic myth of the dogs in the heavens. It is one thing to know that the Greeks of Homer's time craved eagerly imperishable glory, but when we find the same formulary expression in the Vedas (*ákṣitaṁ çrávas* = ἄρθιτον κλέος) we realize that this ambition was implanted in the bosoms of the pre-historic Aryans; what a search-light flashes upon the character of the race through the ages! It is now a hackneyed commonplace to say that English and Sanskrit are but varieties of the same speech, but upon this and kindred facts rests the entire structure of modern linguistic ethnology. To speak the same language constitutes a closer union than to have drunk the same milk; the capacity to wield and develop properly the same type of language is the surest sign of intellectual equality. Hindus like Mr. Bāl Gangādhār Tilak, or the representative Hindus who visited America during the exposition, startle us and make us look after our laurels, but they are simply repeating the history of thousands of years ago when the Hindus had a Pāṇini, of whom it has been said, not improperly, that if the first five greatest names in history were to be picked out, Pāṇini's name would figure among them. And yet Pāṇini was only a poor grammarian. I have a theory that the political history of our century is characterized by two leading facts—first, constitutionalism as the issue of the American and the French Revolutions, and next nationalism. By nationalism I mean that movement by which the older purely political associations all over Europe are being severed, with many a wrench, to be replaced by the truer unity which is based upon common race and language. Constitutional ideas have carried the day almost everywhere, and now nationalism based upon linguistic ethnology is the slogan of all modern political movements in Europe. The future political conformation of Europe will be—it is largely so now—a fairly correct ethnological chart. The union of Italy and the union of Germany, liberated Greece, Irish autonomy, the Hungarian kingdom, the dismemberment of the Austrian Empire, Panslavism, the rise of small nations in south-western Europe, the strained relations between Sweden and Norway at this very time, all these are parts of the apparently irresistible desire which has come over the peoples of the earth to furbish up their rusty national properties, to revive their individual customs and traditions, and above all, their languages. The day-dream of a universal language has passed away forever.

But I must not here do more than suggest this. Nor have I at my disposal the time to point out the manifold new roads which have been opened by this science. Comparative Philology truly has been a nursing mother of new human interests, more so than anything since the days of Greek philosophy. It has gone far to obliterate that odious distinction between the so-called exact and inexact sciences, by infusing into its transactions the spirit of calm, waiting inquiry, and by its vigorous co-operation with anthropology and psychology. Many of her children have waxed strong, and have gone forth to independent careers. But all of them carry with them the unmistakable birth-mark; all of them were started on their way by the old masters. The science of language is now the common property of the philologist, the psychologist, and the average man of culture. Comparative mythology and comparative religion, touching as they do the highest and last question in the story of man, are looming up more and more at the present time; they are sure forever of a place among our best interests. Even now the radical elements common to all religions are knitting into a firm texture of incontrovertible scientific principle: an intuition of a superior power, a sense of human dependence, a belief in the interest of the divine power in the government of the world; a distinction between good and evil, with sympathy for the good and antipathy against the evil; and the belief in some sort of betterment at the end of human life—all these we find everywhere, and we shall expect them now wherever man, erect in attitude, is seen, wherever his voice is heard in articulate speech.

I might continue to trace the effect of this renaissance, as I have taken the liberty of calling it, to a point when you would suspect me of being an interested panegyrist of my own calling. Let me instead quote a few words from one of the highest authorities in the world, illustrating another phase of the effect of this revival. The Royal Prussian Academy of Sciences—a more sober body of men never sat in judgment, everybody will agree—presented in 1886 a congratulatory address to the Asiatic Society of Bengal on the occasion of its centenary celebration. A hundred years had passed since Sir William Jones founded and first presided over this society in the city of Calcutta. They say: "There are few domains of historical and linguistic science which have remained wholly untouched by the influence of Sanskrit studies. The Sanskrit language opened up the primitive Aryan period, and originated the science of Comparative Philology. By its aid ancient Persia and the spiritual monuments of Zoroaster were made accessible, as well as the stone monuments of the Persian kings of the Achemenian dynasty, and again, through the decipherment of these inscriptions, those ancient seats of culture, Assyria and Babylonia, were awakened from the death-like sleep of their cuneiform inscriptions, and were made to tell their own story."

Let me now say a few words in conclusion in reference to our own country's relation to these studies. In the first place, as regards the past and the present, there is no reason whatever for complaint. Even now the study of Sanskrit and Comparative Philology has a tradition in our land; we have our own small group of heroes, and we are not slow in investing them with all the accoutrements becoming to their rank. In fact we may claim without fear of contradiction that, next to Germany, Sanskrit and Comparative Philology are studied more successfully in the United States than in any country on the globe. There are more chairs provided for the study in our universities than either in England, France, Austria, or Russia, not to mention the smaller countries of Europe. The reason for this is in part accidental and traditional; in part it is founded upon the strong idealistic strain in our national character. Next to being the most practical country on the face of the earth, America is also one of the most idealistic. Ibsen, the Norwegian dramatist, has recently poured the vials of his wrath upon our poor people. America, he says, is a country in which every man disports himself in his own puddle. Without doubt he refers to the countless independent and irresponsible intellectual movements, frequently crude and sometimes impertinent, which are at times the despair of our own sounder thinkers. But he fails to see the fundamental truth, underlying all this, the unquenchable desire for the improvement of self and surroundings, the national incapacity to tolerate permanently either real or imaginary wrong, the instinctive thirst for the best, in short that self-guided idealism which began by giving us our independence and our constitution, and which is now rapidly carrying our institutions of learning to the highest attainable plain. I am afraid the general public is not sufficiently initiated in this latter movement. There is reason to fear sometimes that the reports of University activity which reach the public most persistently lead them to believe that our best institutions are engaged chiefly in cultivating a race of foot-ball tigers, or young gentlemen capable of performing a very creditable solo skirt dance. Mind, I am heartily in favor of both these delightful forms of exercise; only I do plead that they shall not absorb the public interest to the exclusion of its appreciation of the less flamboyant charms of university life. A teacher of philology is peculiarly in the position to see another phase which also deserves to hold the public fancy. He sees young men choose a university, far away from home and friends, determined to get what is best; he sees them knock at the doors of the institution, long reverenced from afar; with modest mien—and frequently, alas! with still more modest means—they enter, and expend some of the best years of their young manhood in work whose chief reward through life shall be work, and again work. Not infrequently the teacher himself feels the necessity of toning down the aspirations of these eager young men, when their love of a peculiarly abstract study threatens to lead them away too far from the road towards a livelihood. The story has a flavor and a charm peculiarly its own. But to these young men I would say: If you love some intellectual pursuit, however remote, so that you feel you can not do without it, proceed boldly and strike hard. Put your trust in that strong love of higher knowledge on the part of your people which has under your very eyes raised institutions of learning that suggest and offer these pursuits; trust that this same people will keep pace with its own creation, and will furnish you with opportunities for a wholesome and happy life in your chosen calling.

This was followed by Music: Andante from Mozart's Fifth Symphony.

Professor THOMAS C. MENDENHALL, LL. D., Superintendent of the United States Coast and Geodetic Survey, then delivered an address.

MEASUREMENTS OF PRECISION, CONSIDERED IN THEIR RELATION TO THE CONDITION OF MAN.

AN ADDRESS BY PROFESSOR T. C. MENDENHALL, LL. D.

More than two thousand years ago there lived in the far East a philosopher who established his claim to the possession of a good measure of both wisdom and wit, when he wrote: "Avoid even the appearance of evil: do not stop to tie your shoe in the melon patch of an enemy."

Suppressing the humor but not the sentiment of the Oriental teacher, it is easy to see that Confucius meant to impress upon his followers the importance of taking care that, even in the performance of trivial acts, the time and place should be such as would give rise to no suspicions as to motive or design.

I am honored by being permitted the freedom of your academic groves to-day. I realize that the opportunity of defending a theme under such circumstances is not to be lightly esteemed, and I wish, in the beginning, to make terms with everybody, by declaring that in bringing before you a proposition so simple as to need no argument, I am innocent of ulterior motive or deep design.

My desire to give formal expression to this proposition grows out of the frequency with which it has presented itself in the course of official duties during the past few years.

I wish to consider "Precise Measurement" as one of the agencies through which man has advanced from a condition of savagery to his present state; and the metrology of any age as an exponent of the civilization of that age.

The brief time during which I can venture to ask your attention to this subject fortunately releases me from all obligations to consider literary excellence or rhetorical ornamentation, and compels me even to deviate in some degree from the logical order of presentation. It is safe, however, to take liberties with an audience so largely composed of those who are not only familiar with the facts to be presented but who are accustomed to arrange, digest and put in orderly sequence materials which are found in a more or less chaotic condition.

The first form of measurement to which primitive man resorted was undoubtedly simple enumeration. In narration or barter the number of units in a group was alone considered, regardless of differences among individuals. The recognition of the fact that one quantity is greater or less than another is not measurement. Measurement implies the ability to represent numerically, so that ratios can be accurately expressed. Among primitive races measurement by enumeration is very restricted. Tribes bordering on savagery at the present time are often found to be unable to enumerate beyond three or four. This statement is quite positively made by competent authorities, in spite of the fact that the ability to enumerate the number of fingers on at least one hand would appear to be necessary to even the lowest order of intelligence. It is curious to note in this connection that experiment has apparently proved that four is the maximum number of objects whose accurate enumeration is possible *at a single glance* and without *counting*, by the most highly cultivated man.

As man emerges from savagery his powers of enumeration increase. He soon discovers the necessity for units of a higher order which themselves represent a collection, and easily finds such units provided by nature in the groups of fingers on his two hands. Thus the decimal system of arithmetic is invented; not in one place or by one people, but everywhere and whenever man finds that somewhat extensive enumeration is desirable or necessary. It is a singular exception to this general rule, however, that the Greeks failed to invent a decimal arithmetic.

With systems of notation capable of indefinite extension, measurement by enumeration becomes rigorously exact; that is, barring blunders, which can always be discovered and avoided, the number of units in a group, if capable of being counted at all, can be counted with absolute accuracy. Thus, the cash in the Treasury of the United States may be more than a hundred million dollars, that is more than ten thousand million cents, and the exact quantity can be ascertained to a single cent. By simple enumeration therefore this quantity of money is measured so accurately that the error cannot be as much as one part in ten thousand millions and this might be extended in any degree, if only the cash is there to be counted.

At a comparatively early stage, therefore, this kind of measurement was perfected, but there are two systems or methods of measurement derived from it that are worthy of brief comment. The first includes that variety of mensuration in which the numerical value of a magnitude cannot be obtained by simple counting, but is derived by calculation based on rigorously exact relationship. This is of a distinctly higher order than that just considered and it is only found among highly intelligent people, those, in short, who have cultivated a knowledge of pure mathematics. A very simple illustration is the determination of the area of a triangle when its base and altitude are known. In this and similar cases a rigorously accurate result is attainable when the data are absolutely correct, but simple counting would be impossible. There are cases, however, and these constitute another step along the line in which we are travelling, in which an absolutely accurate evaluation is impossible, but in which any *desirable degree* of accuracy, however, high, may be reached. Perhaps the best known example of this is the determination of the circumference of a circle when its diameter is known. The ratio of the former to the latter, which cannot be exactly expressed, has been determined with a degree of approximation by modern computers, which makes it possible to reduce the outstanding error to an inconceivably small quantity. An attempt to illustrate this may not be without interest.

In a display of mathematical genius which has perhaps never been surpassed, Archimedes more than two thousand years ago discovered the first real approximation to the value of this constant. The accuracy of his result may be shown in the fact that if the diameter of a circle be exactly one inch, its circumference, as determined by the value of the constant found by Archimedes will not be in error more than the thickness of a human hair. If the value of the constant is more accurately known, it will be possible to compute the circumference of a proportionately larger circle so that the error shall not exceed a hair's breadth. Let us go at once from the circle one inch in diameter to one having a radius equal to the distance from the Earth to the Sun and a circumference of nearly 600 millions of miles. It is difficult to form any adequate conception of the enormous stretch of 93 millions of miles which separates the Earth from the Sun. The immensity of it is in some degree realized on reflecting that if it were possible for a child to extend an arm across this space and plunge his hand into the white hot layer of the sun from which light is radiated, he might grow to youth, manhood, old age, and unless he lived through the almost unprecedented period of 125 years, death would come before he would feel the pain of burning, so great is the distance through which the sensation must travel. But even this circle, of 600 millions of miles in circumference, is almost immeasurably small in comparison with the one for which we are seeking. Multiply it by a million; a million million; a million, million million; in fact multiply it by a number expressed by the word million repeated 98 times and we reach a circle of utterly inconceivable dimensions; yet so precisely do we know the ratio of the circumference to the diameter of a circle that having given the diameter of such a circle, its circumference can be determined within the breadth of a hair. For all ordinary, practical purposes this is sufficient.

A very modern and an extremely important species of measurement involving only enumeration is to be found in the statistical method of treating certain classes of problems in which the object is to follow the fortunes of a group rather than an individual. It has long been advantageously applied to social, political, and economical questions and within a few years, in the hands of such men as Clerk Maxwell, Boltzmann, and others it has proved to be a powerful agent in physical investigations.

It depends in great measure on what may be called the principle of the "long run," which is, that phenomena of apparently the most accidental and lawless character will, *in the long run*, occur with regularity and obedience to law, to such an extent as to render their prediction quite possible. At least one great railroad system in this country has so tabulated and investigated all accidents happening to its employes and patrons that it is able to foretell with a good degree of accuracy the number of people who will, during the next year, meet with death on its line; how many will lose a foot, how many an arm and so on; and its Board of Directors is thus always ready to weigh the cost of a new invention to add to the safety of travel, against the probable damages to be paid for fatal and other injuries which said invention might prevent.

Further argument is unnecessary to show that measurement by enumeration, the first to appear in the evolution of man and his accomplishments, has advanced with man and kept pace with his accomplishments; that it has contributed greatly to his advancement and that at any given period it may fairly stand as an exponent of his condition.

But in a far greater degree is this true of the second of the two forms of measurement to which men have resorted, namely, that in which a conventional unit embodying the particular quality to be measured is compared to the magnitude to be evaluated. Nearly all operations ordinarily called measurements belong to this class and its necessity must have followed closely upon the introduction of measurement by enumeration. Of the three fundamental measures, from which it is convenient to derive all others, namely, length, mass and time, the first and last were undoubtedly the earliest to receive attention and it is more than likely that some rude system of time measurement constituted the earliest contribution to metrology. Nature is lavish in the number and variety of time units which she has furnished man, some of which satisfy the most rigorous demands of modern science. In the early stages of chronometric development the method of enumeration was alone available. By taking the solar day as the unit, counting the number of days in a lunar period furnished the month. The year was similarly obtained, at first from the mere cycle of the seasons, but in a somewhat more advanced stage of development, from more exact observations upon the sun. Before this, there must have existed a demand for the division of the day into smaller units of time. Much ingenuity and often genius of a high order was shown in the invention of chronometric devices. A remarkably clever determination of the angular diameter of the sun was made by the Chaldeans by the use of one of the earliest forms of time measuring apparatus. At the moment the sun's disk appeared in the eastern horizon a fine stream of water flowing from the bottom of a vessel in which the level was kept constant, was caught in a small cup into which it was allowed to flow until the lower limb of the sun was visible. The small cup being instantly withdrawn another much larger receptacle was substituted for it, and into this the small stream fell during all of the day and until the sun appeared in the East again on the following morning. It was found that the water in the large vessel was 720 times that in the smaller, from which it appeared that the apparent diameter of the sun was $\frac{1}{720}$ of the circumference of the heavens, or one-half a degree of arc.

It is impossible here to trace the evolution of time measuring from the earliest period to the present, and it is unnecessary, because most of the steps are doubtless well known to you all. You are requested to reflect, however, upon the close relation of the various stages of this evolution to the progress of the human race from savagery to enlightenment.

Hardly anything is a more certain and sensitive index of the advancement of a people than the precision required in the time schedule of the ordinary events of life. Improvement in time measuring instruments, watches and clocks, is in response to a demand for this precision and not the cause of it, as is sometimes asserted. Watches are now regulated to seconds where formerly minutes were near enough and the few remaining civilized people among whom the hour has been the smallest division of time in common use, are fast mending their ways in this respect.

Unfortunately in the development of systems of measurement of length and mass, we have not succeeded as well as with the measurement of time. The greater excellence of the latter is unquestionably due to the universality of the fundamental unit, which is everywhere the day. While there have existed some differences among different nations as to the divisions and multiples of this unit, certain natural phenomena have directed all, along nearly the same lines and at this moment in all essential particulars, the chronometric systems of nearly all civilized nations are identical. Although not the best that could have been devised had existing knowledge and experience been available in the beginning, the prevailing sub-divisions of the time unit are not seriously objectionable and as they are so nearly universal and so firmly established by long usage, they are almost certain to continue unchanged.

In measures of length and mass or weight, the tendency from the beginning, up to a very recent period, has been, as in the case of time, towards the selection of natural units.

Dimly comprehending the importance and necessity of invariable units of measure, primitive man looked to nature to find the invariable. The nomenclature of every system of measure known bears testimony to the original use of natural units. Of measures of length familiar to all may be mentioned the hand, foot, pace, fathom, cubit, ell and span, all of which are derived from the dimensions of the human body. The inch, as everybody knows, was originally the length of three barley-corns from the middle of the ear, placed end to end. At a later period among some of the oriental nations the unit of length was the length of a bamboo pipe, which when blown would produce a certain musical pitch. This argues a reckless indifference as to units of length or an extraordinary power of detecting variation in the pitch of musical tones.

Units of weight or mass also had their origin in natural magnitudes, although in this case much greater difficulty is experienced. Almost the only natural unit of mass that was suggested or used was the mass of a grain of wheat from the middle of the ear, and from this our use of the grain weight of to-day is derived.

But all men are not alike in stature nor are grains of wheat of great uniformity in dimensions or mass. As might have been anticipated, under such conditions there grew up, not only in different parts of the world, but in different sections of the same country a variety of systems of weight and measure having no exact relations to each other, or among themselves, and which developed, as intercourse between nations became easier and more general, into one of the greatest calamities ever visited upon mankind. Various efforts were made at various times by various nations, each to improve its own system, but little good resulted up to almost exactly one hundred years ago. At the close of the Revolutionary War the weights, measures and coins in use in this country were almost innumerable in kind. Although mostly inherited from our Anglo-Saxon ancestors, many other European systems had gained a foothold and considerable diversity in names and values had grown up throughout the Colonies. An opportunity was presented at that time which we shall never see again and which was lost by what one is forced to call the moral cowardice of men in high places. No one appreciated this opportunity more thoroughly than Thomas Jefferson, perhaps the most scholarly man of his time, in public life; the patron and friend of science and scientific men.

Jefferson recognized the incongruities of existing systems of weight and measure, but not wishing to depart sensibly from the foot as a unit of length he offered ingenious suggestions for a perfected scheme of linear measurement in which the foot was to be related decimally to the length of a seconds' pendulum and was to be decimally sub-divided.

The Constitution of the United States provides that Congress shall have power to coin money, regulate the value thereof, and to fix the standard of weights and measures. At an early day this power was wisely exercised to provide escape from the bondage of the unphilosophical pounds, shillings and pence of the Mother Country by the establishment of a decimal system of coin ratios, the use of which during the past hundred years has been a greater gain, as compared with the discarded system, than the value of all the money in the country at the time of its adoption.

The second prerogative, that of "fixing a standard of weights and measures" was not at that time and, as a matter of fact, has never yet been exercised by Congress; indeed, considering the great danger which continually existed that when Congress did act it would act wrongly, it is a matter of congratulation that legislation on this important matter has thus far practically gone by default. But the opportunity existing during the early days of our National life was great, for the reason that just at this time there was conceived and perfected on the other side of the Atlantic the most decided, the most important and the most far-reaching advance in metrology that the world has ever seen.

It had its beginning in the wisdom and foresight of the distinguished Talleyrand, who in 1790, while still a Bishop, impressed by the excessive diversity and confusion of the weights and measures then prevailing proposed to the assembly of France a scheme for their reformation. Realizing that not only national but international reformation was desirable, other nations were invited to join in the development and execution of this magnificent scheme. The cooperation of the Royal Society of London and of the English Government was sought, but unfortunately the English were not then in the mood for giving support to the French.

For the preliminary steps, looking to the determination of the value of the fundamental units and their relation to each other, a committee of The French Academy including the most eminent mathematicians of Europe, was appointed, among its members being Borda, Lagrange, Laplace and Condorcet. Others engaged in the various measurements necessary to this determination were Lavoisier, Coulomb and Delambre.

Throughout the stormy scenes that accompanied the great political and social changes which occurred in France during the last decade of the 18th century, these noble scholars steadfastly pursued the problem upon the solution of which they had set out. At one time Borda, Lavoisier, Laplace Coulomb, and Delambre, were dismissed from this public service by Robespierre's Committee of Safety, because their political views were suspected of being not quite in harmony with those of the aggressive party in power. (That was a hundred years ago.) But Robespierre was ambitious as well as cruel and the project was afterwards allowed to go on. Finally, on June 22, 1799, the two new perfected standards, a metre, the unit of length, made of platinum, and a kilogramme, the unit of mass, of the same metal, were presented with great solemnity at the bar of both houses of the National Assembly of France by the celebrated Laplace, who addressed the assembled legislators; and on the same day the two standards were deposited in the Archives of France, destined to be, a century later, the accepted units of measure of more than half of the civilized world and eventually to become universal. In a Report filed just seventy-three years ago to-day, John Quincy Adams, then Secretary of State, says of this event. "The spectacle is at once so rare and so sublime . . . that not to pause for a moment, were it even from occupations not essentially connected with it, to enjoy the contemplation of a scene so honorable to the character and capacities of our species, would argue a want of sensibility to appreciate its worth." "This scene," he says, "formed an epoch in the history of man and an example and an admonition to the legislators of every nation, and of all after-times."

Just one hundred years ago, in 1794, copies of the preliminary metric standards were sent to this country and our government was urged to join in this memorable undertaking. Then, and during the thirty years following, the question of our adopting a system of weights and measures in harmony with our admirable monetary system was much agitated, but the counsel of the timid prevailed and the wretched system which we had inherited mainly from England, but which is not in harmony with the English, was allowed to fasten itself upon the industrial interests of the country. The Report on the subject by John Quincy Adams, already referred to, is a monument of exhaustive research and philosophical discussion. Nowhere is the decimal system praised so highly as in this report. In it he says of this system that, "Considered merely as a labor-saving machine, it is a new power, offered to man, incomparably greater than that which he has acquired by the new agency which he has given to steam. It is in design the greatest *invention* of human ingenuity since that of printing." This is high praise and it is difficult to understand how the author of this and much more like it, could lack the courage to recommend that his country should at once put itself in the way of sharing the benefits of so remarkable a reformation. The spirit of conservatism, which came from his ancestors along with the yard and the pound, led him to advise that it was better to await the action of other nations, especially Great Britain.

At the close of the last century, in different parts of the world, the word *pound* was applied to 391 different units of weight, and the word foot to 292 different units of length. Not only were no two of these identical but in only a few cases were their relative values known with anything like precision. In the wonderful march of the 19th century, most of these have been swept away until now, of the enlightened nations of the earth, only the English speaking people cling to what Lord Kelvin has so felicitously characterized as our "brain-wearying and intellect-wasting system of weights and measures."

I must now return to a very brief consideration of the indirect influence of precise measurement upon the welfare of man. Thus far the development of exact standards has been considered in relation to man's convenience, as facilitating the transaction of business, by diminishing the uncertainty and labor involved in commerce and trade. But indirectly it has been even more powerful. The use of correct standards of weight and measure has been regarded from the beginning as necessary to and indicative of integrity and fair dealing, among nations as well as individuals. Ultimate standards of reference, even in the earliest history of metrology, were carefully guarded and usually considered a part of the paraphernalia or accessories of the King or ruler. Although these standards were, until a comparatively recent period, very rude in their construction, they represented in a large measure the integrity of the nation and to depart from or modify them was regarded as akin to a crime. According to Josephus, when Cain had settled in the land of Nod and built a City he invented weights and measures. In the law as given to Moses it is declared "Thou shalt not have in thine house divers measures, a great and a small." The renowned Chinese Emperor, Yeo, who flourished 4000 years ago, kept the weights and measures which were used in the markets in a part of his own palace. In many countries standards were deposited in temples and priests were their custodians. One of the principal objects sought to be secured by the Magna Charta was uniformity of weights and measures throughout the Kingdom, and the one small spot in the world to-day whose neutrality is secured by the joint agreement of all civilized nations, including even the United States and Great Britain, is a bit of land near Paris where stands the building in which the International Prototype Metre and Kilogramme are preserved.

But in a far greater degree has precise measurement influenced the character, condition and destiny of man through its relation to the development of modern science. Volumes might be written about this, although not much is necessary before an audience, to many of whom it is almost a daily lesson, and before another, smaller audience of those who have contributed so largely during the past quarter of a century to the advancement of science and the improvement of the art of measuring.

Precision in measures demands and produces precision in language, and exact language makes exact thinking possible.

One cannot but admire the genius which enabled some of the philosophers of a few centuries ago to triumph over the obstacles growing out of the lack of exactness both in language and experiment. When Newton was converting his theory of the spheroidal form of the earth into established fact he could only ascertain the possible effect of change of temperature upon the period of a pendulum by means of comparisons of the length of an iron bar when exposed to the sun's rays on a hot summer's day, with its length on a frosty morning in winter. Even in the earlier Transactions of the Royal Society of London, one may find time measured in *misereres* and temperature in inches. In the wonderful progress that has characterized the present age, by which business methods and social life have been well-nigh revolutionized, exact science has been the dominant factor. It is impossible here even to mention the many interesting devices by means of which during the last half century the precision of measurements has been enormously increased. They are to be seen in nearly every laboratory and are familiar to you all. Their invention has made possible many brilliant and useful discoveries in science and it is gratifying to know that on this line our own country has been and is well to the front. Many proofs of this might be given, but among the most notable contributions of modern times to the science and art of delicate and precise measurement one cannot fail to note the splendid work of Rowland in his measurement of light wave-lengths, of Langley in his solar researches, and of Michelson in his determination of the metre in terms of the ether vibration. The glory of the nineteenth century is exact experiment and honest logic, and precision in measurement has done much to make both possible.

In the matter of the metrology of the affairs of daily life, however, it is humiliating to confess that we are still skulking in the rear. Our sixty millions of intelligent citizens are far less intelligent and less fit for the responsibilities that rest upon them, than they might be, were they not continually wearying their brains and wasting their intellects in constant struggle with the difficulties inherent in the system of metrology to which we so blindly cling. I yield to no one in my appreciation of the accurate learning and profound scholarship of the gentlemen of the Faculty of the institution before which I have the honor of appearing to-day, but I unhesitatingly affirm that not one of them, not even all of them together can correctly set forth the system of weights and measures in common use at the present time in this country. Let us hope that this burden will be lifted in the near future and that the pound and yard with their innumerable and irrational derivatives, relics of the dawn of civilization, will be replaced by the beautifully simple kilogramme and metre. We can then rest with the pleasing assurance that when the next cataclysm shall have passed and the archaeologist of the future shall be burrowing among the ruins of the present age he will not be misled by the crudeness of our metrology to catalogue us along with earlier civilizations. At best he will exhume much which we could wish to remain forever buried, but let us hope that the evidence of integrity and simplicity in commercial transactions; of delicacy and precision in scientific investigations; and especially of honest and independent thinking will be such that he will be compelled to put us down as a race in which, to apply the eloquent words of Buckle, "the greatness of men has no connection with the splendor of their titles, or the dignity of their birth; it is not concerned with their quarterings, their escutcheons, their descents, their dexter-chiefs, their sinister chiefs, their chevrons, their bends, their azures, their gules and the other trumperies of their heraldry; but it depends upon the largeness of their minds, the powers of their intellect and the fulness of their knowledge."

This was followed by Music: Finale from Mozart's Fifth Symphony.

The Degree of Doctor of Philosophy was then conferred upon the following Candidates:

James Dowden Bruner (A. B., Franklin College (Ind.) 1888).
James Douglas Bruce (A. M., University of Virginia, 1883).
Lewis Leaming Forman (A. M., University of Penn., 1890).
George Francis Weida (University of Kansas, 1888).

The exercises closed with the singing of "Veritas Vos Liberabit." Verses by W. L. Devries, music by Miss Starr.

The instrumental music was rendered by the Peabody Students' Orchestra under the direction of Professor John Itzel, of the Peabody Conservatory. The vocal music was rendered by a chorus of university students under the leadership of Mr. T. S. Baker.

The Marshals of the day were: Professor Edward Renouf, Chief Marshal; Dr. J. S. Ames, Assistant; and Messrs. W. W. Randall, W. S. Symington, Jr., B. M. Roszel, J. B. Crenshaw, J. F. Norris, T. W. Hastings, Lawrason Brown, W. D. Lilly, L. W. Miles, S. S. Janney, E. D. Nelson.

The Ushers in the Hall were: T. R. Brown, J. G. Ames, Jr., T. S. Baker, L. W. Day, J. H. Latane, H. T. Marshall, James Piper, J. H. Pleasants, Jr., J. E. H. Post, J. H. Thomas, J. H. Purnell, R. P. Strong, B. M. Torrence.

The principal buildings of the University were open for visitors between the hours of three and five o'clock in the afternoon.

Meeting of the Alumni Association.

The Eighth Annual Meeting of the Alumni Association was held at the Lyceum in the evening. The meeting was called to order by the President, Charles Morris Howard, A. B.

The following amendment to Art. V, Sec. 5, of the Constitution, was offered by Mr. Hinkley:

Nominations of a candidate or candidates for President, Secretary, and Treasurer, and for other places upon the Executive Committee, for the ensuing year, may be made in writing by any five members of the Association, and filed with the Secretary on or before the 1st of February. The

Executive Committee may nominate additional candidates for any or all such offices, and shall make a sufficient number of nominations when no other nominations are made, or in case of an insufficient number, or of a failure to make nominations of men holding the degrees required. All nominations shall be printed alphabetically, without anything to indicate who made the same, with a statement of the necessary number to be elected and the requirements as to degrees, and shall be distributed at least five days before the annual meeting. Such officers and committee-men shall be elected by the Association at its annual meeting, by ballot, and the officers shall hold office from one Commemoration Day until the next, and the committee-men until the Commemoration Day of the second year, or until their successors respectively are chosen.

After some discussion the amendment was adopted.

Officers were elected as follows:

President, E. R. L. Gould, Ph. D., 1886; *Secretary*, Hugh Judge Jewett, Jr., A. B., 1892; *Treasurer*, Henry O. Thompson, A. B., 1887; *Members of the Executive Committee*, Charles Morris Howard, A. B., 1884; Cyrus Adler, Ph. D., 1887; Harry O'Donovan, A. B., 1888; Waldo Newcomer, A. B., 1889; J. L. G. Lee, A. B., 1893.

Mr. Robinson offered the following resolution:

Resolved, That the Executive Committee of the Alumni Association be and they are hereby directed to consider the most feasible plan of offering a qualified membership to those persons who reside in Maryland and have taken courses, but not degrees, at the University.

This was carried unanimously.

The report of the Alumni Advisory Committee of the Athletic Association suggested that the membership of the Committee should be enlarged and the term of office lengthened. Mr. Jewett offered the following resolution:

Resolved, That the Alumni Advisory Committee of the Athletic Association be increased to three members, who shall be elected at this meeting. At the first meeting of this committee they shall divide themselves, by lot, into three classes, whose terms of office shall be for one, two and three years, respectively; and at the annual meeting of this Association, in each succeeding year, one member shall be elected to fill the vacancy caused by the expiration of the term of office of any member.

This was carried.

Mr. Allan McLane nominated as members of the committee, George Dobbin Penniman, A. B., 1884; E. P. Keech, Jr., A. B., 1890; George C. Morrison, A. B., 1890; and they were elected.

After the meeting adjourned the members sat down to dinner (about eighty-five being present). The Banjo and Mandolin Clubs had accepted the invitation to be present, and by their admirable playing largely increased the pleasure of the evening.

The retiring President, Charles Morris Howard, A. B., called upon several of those present, after the dinner, for speeches.

The Executive Committee, at its first meeting, elected Charles Morris Howard, A. B., Vice President.

Meetings of the Alumni in San Francisco, Chicago, New York, and Tokio.

A meeting of the Alumni on the Pacific Slope was held in San Francisco. The following telegram was sent to Baltimore:

"Midwinter Fair, San Francisco, Cal., *February* 22, 1894.

To President Gilman:

Hopkins men on the Pacific Slope send greetings to their alma mater: Vivat, crescat, floreat. Stringham, Lawson, Shinn, Pease, Ross, Warner, Green, Richardson, Murray, Fairclough, Taylor, Jenkins, Matzke."

The annual meeting of the Northwestern Association of Alumni was held at the University of Chicago on February 22, at noon. The following telegram was forwarded:

Chicago, *February* 22.

To President Gilman:

The Northwestern Alumni Association send greetings and express their unceasing indebtedness to the Johns Hopkins University for its efforts in behalf of educational standards.

H. H. Donaldson, *President.*
J. T. Hatfield, *Secretary.*

The New York Alumni had their annual dinner in New York City on Monday, February 26.

Twenty members were present. Reports were read by the Secretary and Treasurer. Officers were elected as follows:

President, Walter H. Page, Editor of the *Forum*; *Vice Presidents*, J. H. Hyslop, of Columbia College, D. W. Hering, of the University of the City of New York, and C. A. Boston; *Secretary*, Benjamin Tuska; *Treasurer*, M. P. Stevens; *Chronicler*, Fulton McMahon.

During the exercises of Commemoration Day, President Gilman read a greeting from six Japanese, who were formerly students here. The greeting was dated Tokio, January 31, 1894, was addressed to President Gilman, and was signed by M. Kuhara, K. Mitsukuri, S. Sato, Y. Motora, T. Shinoda, and T. Iyenaga. It read as follows:

"We, the undersigned, graduates and former students of the Johns Hopkins University, have this day been holding a reunion and been refreshing our memory of the pleasant days spent in Baltimore. We think it but right to send our greetings to our alma mater. May she continue prosperous and ever increase in usefulness."

PROCEEDINGS OF SOCIETIES.

Scientific Association.

February 21, 1894.—One hundred and thirteenth meeting. Professor Renouf in the chair.
The Zoological View of the Formation of the Earliest Fossils, by Wm. K. Brooks.
Herbaria and their Relation to Botany, by J. P. Lotsy.

Philological Association.

February 16, 1894.—One hundred and thirty-second regular meeting. Professor Gildersleeve in the chair. Fifty members present.
On Ben Jonson's Burlesque of Shakespeare, by H. Wood.
An Assyrian Letter, by C. Johnston.

Historical and Political Science Association.

January 18, 1894.
The Civil Status of the Jews in Maryland from 1634 to 1776, by J. H. Hollander.
Date Masamune; or Early Relations between Japan and Rome, by C. Meriwether.
February 1.—Edmund Burke, by Woodrow Wilson.
February 15.—The Bounty System of the American Revolution, by Herbert Friedenwald.
March 1.
Academies and the University, by H. B. Adams.
Samuel Houston and Texas, by B. J. Ramage.

Baltimore Naturalists' Field Club.

February 13, 1894.
Notes on Symplocarpus Foetidus, by B. W. Barton.
A List of New Ferns and Late Blooming Flowers, by C. E. Waters.
Notes on a Bush of Corylus Americana, by Basil Sollers.
March 13.
Notes on an Abnormal Egg, by A. J. Bigney.
Baltimore County Warblers, by J. Hall Pleasants, Jr.
Discussion about Two New Ferns, by J. H. Brummell.

Botanical Section.

January 22.—The Origin of the Epiphytic Flora, by J. P. Lotsy.
February 6.—The Lianas of Tropical Woods, by D. S. Johnson.
February 20.
The Hibernation of Plants, by Cornelius Beatty.
Histology of Dianthera Americana, by B. W. Barton.
March 5.
The Protection of Plants against Snails, by J. P. Lotsy.
The Protection of Green Leaves, etc., against Animals, by C. E. Waters.

Young Men's Christian Association.

February 16, 1894.—General Reception.
February 27.—Lecture by Professor Haupt on The Genesis of our Bible.

In Memoriam.

Hon. CHARLES JOHN MORRIS GWINN.

The Honorable CHARLES JOHN MORRIS GWINN, one of the Trustees of the Johns Hopkins University and the Johns Hopkins Hospital, died at his residence in Baltimore, Sunday, February 11, 1894, in his seventy-second year. The funeral was attended on the following Tuesday, and his body was buried in Greenmount Cemetery.

ACTION OF THE TWO BOARDS OF TRUSTEES.

A joint meeting of the Trustees of the two institutions was held at the University, Monday, February 12, when the following minute and resolutions were adopted unanimously:

Minute.

In founding and administering institutions as complex as this University and this Hospital, there are many parts and many actors. One contributes capital, another suggestion, another experience, another learning and another counsel. The resultant of all these forces is the progress of the undertaking, which, according to their adjustment, may be slow or quick, irregular or steady, disheartening or inspiring.

In the organization and development of the Johns Hopkins foundations the Hon. Charles J. M. Gwinn has been from the beginning a counsellor. It is never to be forgotten that his pen drafted the instruments by which both the Hospital and the University were created, and that in no small degree it is due to his wise foresight that the fundamental articles of both institutions were kept free from those needless restrictions and those embarrassing requirements which often fetter the noblest plans.

With Francis White and the late Francis T. King he was an executor of the will of Mr. Hopkins. He was an original member of both boards, and on the death of Judge George William Brown, in 1890, he succeeded in the University Board to the important office of chairman of the executive committee.

His eminence as a lawyer caused him to be the counsellor upon whom both boards relied for legal advice. He never encouraged litigation, but always sought for conciliatory action. In the art of exact and discriminating expression he was remarkably successful, and nothing seemed to give him more pleasure than to reduce to an acceptable form the conclusions reached by his colleagues upon difficult or controverted points. His attendance upon the meetings of the Trustees during a period of nearly twenty years was regular and punctual, and when absent he rarely, if ever, failed to send a written apology. His manners were dignified and courteous; his language was graceful and seasoned with wit. He earnestly advocated the admission of women to the Johns Hopkins Medical School upon exactly the same terms as men, and he drafted the papers by which this result was reached. Under all circumstances he was in favor of maintaining high standards of education and scholarship.

A man of noble mien, of great natural ability, of liberal education, of wide reading in literature, history and jurisprudence, he naturally came into varied and confidential intercourse with the leaders of public opinion in politics and in law, while his abilities as a counsellor were recognized not only by his colleagues, but by the public, who called him repeatedly to stations of dignity and responsibility.

His name is sure to be remembered in the annals of the two foundations to whose interests he was thoroughly devoted.

Resolutions.

Whereas it has pleased Almighty Providence to remove our friend and colleague, the Honorable Charles John Morris Gwinn: Be it

Resolved, That we here record our admiration of his brilliant talents, our appreciation of his constant and efficient services to those institutions with which he has been honorably connected from their foundation, and that we tender our expressions of sincere sympathy and condolence to his family in this the hour of their bereavement and trial.

Resolved, That a copy of the foregoing minute and resolution be transmitted to the family of Mr. Gwinn.

Resolved, That the members of the two boards will attend the funeral in a body.

Remarks in respect to the character and services of Mr. Gwinn were made by several of his associates. Among others, Dr. James Carey Thomas spoke substantially as follows:

"I cannot forbear the expression in a few words of my sense of the great loss that this University has sustained in the death of Charles J. M. Gwinn. In common with those who shared the responsibility of the inception and development of the University, he constantly watched with satisfaction its increasing influence upon the country as well as upon this community. Mr. Gwinn's interest in the affairs of the University deepened with each year of its successful progress, and he became more and more devoted to its service. We can hardly realize at this time that the sudden removal by death of our friend and fellow-trustee, in the midst of his mental activity and usefulness, will henceforth deprive us of his valuable counsel and help."

BIOGRAPHICAL SKETCH.

The following statement of the principal dates in the life of Mr. Gwinn were brought together immediately after his death and printed in the Baltimore *Sun* of February 12, 1894.

Mr. Gwinn was born in Baltimore, October 21, 1823. His father was a merchant and importer of West India products. His early education was received in the schools of Baltimore. He was at one time a student at the University of Maryland in the general educational work which that institution then conducted.

From Princeton College Mr. Gwinn was graduated in 1840 with high honors. Upon his return to Baltimore he studied law with the late John H. B. Latrobe, and was admitted to the bar in 1843.

In 1849 he was a member of the Maryland House of Delegates, and in 1850 he was a delegate from Baltimore to the Constitutional Convention which framed the constitution of 1851. Mr. Gwinn was the first State's Attorney of Baltimore elected under that constitution. The election took place in 1851, and Mr. Gwinn was the Democratic candidate. His opponent on the Whig ticket was Mr. S. Teackle Wallis. The term of office was four years, and Mr. Gwinn declined a renomination.

He was one of the presidential electors on the Democratic ticket in 1852. This was the campaign in which President Pierce was elected. Near the close of Mr. Pierce's term Mr. Gwinn was sent to Europe on a special diplomatic mission for the national government.

From 1856 to 1875 Mr. Gwinn devoted his time to the practice of his profession. During this period he became, in conjunction with Mr. John H. B. Latrobe, the leading counsel of the Baltimore and Ohio Railroad Company. Mr. Gwinn was counsel for the banking house of Robert Garrett & Sons and for the late A. S. Abell and the late Johns Hopkins. Later Mr. Gwinn became general counsel in Maryland of the Western Union Telegraph Company and the Chesapeake and Potomac Telephone Company.

From the time when he drafted the will of Johns Hopkins, Mr. Gwinn became closely allied with the establishing of the Johns Hopkins University and Johns Hopkins Hospital. He was named as one of the first trustees of both institutions, and held the position until his death.

In the campaign of 1875 Mr. Gwinn was again pitted against his former opponent, Mr. S. Teackle Wallis. Mr. Gwinn was then candidate for attorney-general on the Democratic ticket headed by John Lee Carroll for Governor. Mr. Wallis was the independent candidate for attorney-general. Mr. Gwinn secured the prize, and upon the expiration of his term of four years was re-elected in 1879, when William T. Hamilton was elected Governor.

The assistance of Mr. Gwinn was given and his advice relied upon in framing the national platforms and conducting the national campaigns of the Democratic party in 1876, 1880, 1884 and 1892. He was a delegate to the national conventions of the party in 1860, 1868, 1880, 1884 and 1892. He was usually called upon to represent the Maryland delegation on the committee on platform.

In 1857 Mr. Gwinn married Miss Matilda Johnson, daughter of the late Hon. Reverdy Johnson, who, with one daughter, survives him.

ENUMERATION OF CLASSES, SECOND HALF-YEAR, 1893-94.

Mathematics and Astronomy. (105 Students).

Classes meet in the Physical Laboratory.

Theory of Functions: (*Elementary Course*): Professor CRAIG. Monday and Tuesday, 11 a. m. (18).

Barton, S. M.
Clutz.
Dorsey, N. E.
Duvall.
Ferry.
Johnson, T. W.
Lehmer.
Lewis, E. P.
McKee, G. C.
Morris, J. S.
Morrison, A. M.
Porter.
Roberts, E. H.
Sayre.
Schenck.
Sharpe.
Watts.
Wilson, W. S.

Mathematical Seminary: Professor CRAIG. Wednesday, 9 a. m. (26).

Barton, S. M.
Clutz.
Cohen, A.
Dorsey, N. E.
Duvall.
Eiesland.
Ferry.
Johnson, E. H.
Johnson, T. W.
Landis.
Lehmer.
Lewis, E. P.
Maltbie, W. H.
Manning.
McKee, G. C.
Morris, J. S.
Morrison, A. M.
Porter.
Roberts, E. H.
Sayre.
Schenck.
Sharpe.
Taliaferro.
Tudor, J. H.
Watts.
Wilson, W. S.

Elliptic Functions: Professor CRAIG. Monday, Tuesday, Thursday, and Friday, 9 a. m. (11).

Barton, S. M.
Cohen, A.
Duvall.
Eiesland.
Hulburt.
Landis.
Maltbie, W. H.
Manning.
Sayre.
Taliaferro.
Tudor, J. H.

Differential Equations: Professor CRAIG. Thursday and Friday, 11 a. m. (11).

Barton, S. M.
Cohen, A.
Duvall.
Eiesland.
Hulburt.
Landis.
Maltbie, W. H.
Manning.
Sayre.
Taliaferro.
Tudor, J. H.

Theory of Numbers: Professor FRANKLIN. Monday, Wednesday, and Friday, 10 a. m. (11).

Barton, S. M.
Clutz.
Cohen, A.
Johnson, E. H.
Lehmer.
Roberts, E. H.
Stoner, E. L.
Taliaferro.
Tudor, J. H.
Watts.
Wilson, A. H.

Theory of Probability: Professor FRANKLIN. Tuesday and Thursday, 10 a. m. (6).

Clutz.
Duvall.
Johnson, E. H.
Lehmer.
Maltbie, W. H.
Stoner, E. L.

Analytic Geometry: (*Major Course*): Professor FRANKLIN. Monday, Tuesday, and Wednesday, 9 a. m. (17).

Arnold, B. W.
Bissing.
Clark, C. B.
Dorsey, N. E.
Douglas.
Griswold.
James, G. O.
Johnson, E. H.
Lehmer.
McClain.
More, L. T.
Pindell.
Ramm.
Stoner, E. L.
Williams, H.
Wilson, A. H.
Wilson, W. S.

Projective Geometry: Professor STUDY. Tuesday and Thursday, 4 p. m. (12).

Brackett.
Clutz.
Eiesland.
Harrison, C. N.
James, G. O.
Johnson, E. H.
Lehmer.
Morris, J. S.
Pindell.
Schenck.
Stoner, E. L.
Wilson, A. H.

Plane Algebraic Curves: Mr. HULBURT. Thursday and Friday, 10 a. m. (3).

Dorsey, N. E.
Morris, J. S.
Schenck.

Differential Equations: (*Major Course*): Mr. HULBURT and Mr. LANDIS. Thursday and Friday, 9 a. m. (26).

Arnold, B. W.
Bateman.
Boude.
Brackett.
Branch, B. H.
Clark, C. B.
Douglas.
Gallaudet.
Griswold.
Hill, G. H.
James, G. O.
Johnson, E. H.
McClain.
McIver.
Mullen.
Pindell.
Ramm.
Ridgely.
Rothermel.
Smoot.
Stoner, E. L.
Watts.
Wilcox.
Williams, H.
Wilson, A. H.
Wilson, W. S.

Differential and Integral Calculus: Mr. HULBURT and Mr. LANDIS. Daily, 1 p. m. (40).

Allen.
Aull.
Baugher.
Binswanger.
Calhoun.
Caspari.
Deutsch.
Diehl.
Downin.
Eisenbrandt.
Gassman.
Gordon.
Griffin, J. J.
Harriman.
Harry.
Hill, M.
Hodges.
Karslake.
Knight.
Lackey.
Lacy.
Lanahan.
Lawson.
McCaskell.
Nelson.
Norris, H. H.
Powell.
Reeder.
Ridgely.
Rogers.
Schwab.
Singewald.
Stevens, A. R.
Thomas, J. H.
Tillman.
Wallis.
Ware.
West, J. M.
White.
Whitaker.

Advanced Theoretical Astronomy: Dr. POOR. Wednesday, 4 p. m. (4).

Clutz.
Ebaugh.
Harrison, C. N.
Stoner, E. L.

Special Perturbations: Dr. POOR. Monday, Tuesday, and Wednesday, 9 a. m. (3).

Clutz.
Ebaugh.
Harrison, C. N.

Astronomical Seminary; Journal Meeting: Dr. POOR. Wednesday, 5 p. m. (13).

Clutz.
Ebaugh.
Eiesland.
Harrison, C. N.
Hoffman.
Johnson, E. H.
Landis.
McClain.
Roszel.
Sayre.
Stoner, E. L.
Taliaferro.
Tudor, J. H.

Laboratory Work: Dr. POOR. Daily, 8 p. m. (16).

Clutz.
Ebaugh.
Harrison, C. N.
Hoffman.
Hulburt.
Johnson, E. H.
Landis.
Lewis, E. P.
McClain.
Sayre.
Sharpe.
Stoner, E. L.
Taliaferro.
Tillman.
Tudor, J. H.
Watts.

Gravitational Astronomy: History of Astronomy: Dr. POOR. Monday, Tuesday, and Wednesday, 11 a. m. (10).

Eiesland.
Harrison, C. N.
Johnson, E. H.
Landis.
McClain.
Sayre.
Stoner, E. L.
Taliaferro.
Tudor, J. H.

In addition the following students attended the lectures on Least Squares:

Anderson, W. P.
Brackett.
Branch, B. H.
Darrell.
Hill, G. H.
James, G. O.
Norris, H. H.
Penniman.
Ridgely.
White.
Wilcox.

Analytic Geometry: (*Elementary Course*): Mr. MANNING. Monday, 2 p. m., Wednesday, 2 p. m., Friday, 3 p. m. (9).

Baxter.
Bentley.
Carson.
Hastings.
Johnson, F. H.
Killmon.
McCornick, W. S.
Shaw.
Thomas, R.

Physics. (114 Students.)

Classes meet in the Physical Laboratory.

Physical Optics: Professor ROWLAND. Monday, Tuesday, Thursday, and Friday, 10 a. m. (15).

Bliss.
Day, W. S.
Ferry.
Friese.
Harrison, C. N.
Johnson, T. W.
Mackay.
McKee, G. C.
More, L. T.
Morrison, A. M.
Northrup.
Porter.
Reid, H. F.
Sharpe.
Zahm.

Journal Meeting: Professor ROWLAND and Dr. AMES. Wednesday, 11 a. m. (22).

Bliss.
Carmichael.
Day, W. S.
Dorsey, N. E.
Elder.
Ferry.
Friese.
Harrison, C. N.
Johnson, T. W.
Lewis, E. P.
Mackay.
McKee, G. C.
More, L. T.
Morrison, A. M.
Northrup.
Porter.
Ramm.
Reid, H. F.
Schenck.
Sharpe.
Wolff.
Zahm.

Theory of Attractions: Dr. AMES. Thursday and Friday, 11 a. m. (18).

Bliss.
Carmichael.
Day, W. S.
Dorsey, N. E.
Ferry.
Friese.
Harrison, C. N.
Johnson, T. W.
Lewis, E. P.
Mackay.
McKee, G. C.
More, L. T.
Morrison, A. M.
Porter.
Ramm.
Schenck.
Sharpe.
Zahm.

Physical Seminary: Dr. AMES. Wednesday, 7.30 p. m. (7).

Bliss.
Day, W. S.
Ferry.
Lewis, E. P.
More, L. T.
Morrison, A. M.
Porter.

General Physics: (*Major Course*): Dr. AMES. Daily, 12 m. (40).

Anderson, W. P.
Aull.
Bateman.
Boude.
Brackett.
Branch, B. H.
Bucher.
Carmichael.
Crane.
Douglas.
Elder.
Freeman.
Gallaudet.
Griswold.
Hains, P. C.
Harrison, C. N.
Henderson.
Hill, G. H.
Hite.
McClain.
McCrosky.
McIver.
McKenzie.
Morris, J. S.
Northrup.
Piper.
Ridgely.
Roberts, E. H.
Rothermel.
Sharpe.
Smoot.
Thom.
Tillman.
Tudor, C. G.
Uhler.
Watts.
Wilcox.
Williams, H.
Wilson, A. H.
Wilson, W. S.

General Physics: (*Minor Course*): Dr. AMES. Daily, 10 a. m. (37).

Allen.
Baugher.
Beatty.
Bowlus.
Clark, C. B.
Deutsch.
Douglas.
Eisenbrandt.
Fay, H.
Gordon.
Harriman.
Hill, M.
Hodges.
James, G. O.
Johnson, F. H.
Kennard.
King.
Lackey.
Lawson.
McCaskell.
Nelson.
Page.
Parker, H. P.
Pindell.
Powell.
Reeder.
Rogers.
Rutter.
Sayre.
Schwab.
Singewald.
Stoner, L.
Thomas, J. H.
Tillman.
Torrence.
Waters.
Wilson, W. S.

Applied Electricity: (*Second Year Course*): Dr. DUNCAN. Thursday and Friday, 9 a. m. (28).

Anderson, W. P.
Baugher.
Bissing.
Carmichael.
Corning.
Cottman.
Darrell.
Elder.
Ferry.
Hains, P. C.
Hayes.
Howard.
Maccoun.
McCrosky.
McKee, G. C.
More, L. T.
Norris, H. H.
Northrup.
Penniman.
Randolph.
Reid, H. F.
Roberts, F.
Scott, J. B.
Straus.
Taylor, J. S.
Thomas, F. McS.
White.
Wilson, R. L.

Applied Electricity: (*First Year Course*): Dr. DUNCAN. Tuesday and Wednesday, 9 a. m. (33.)

Bateman.
Baugher.
Bissing.
Boude.
Brackett.
Branch, B. H.
Carmichael.
Corning.
Cottman.
Darrell.
Elder.
Ferry.
Gallaudet.
Hains, P. C.
Hill, G. H.
Maccoun.
McCrosky.
McIver.
McKee, G. C.
Mullen.
Norris, H. H.
Penniman.
Randolph.
Ridgely.
Roberts, F.
Rogers.
Rothermel.
Smoot.
Straus.
Thomas, F. McS.
White.
Wilcox.
Wilson, R. L.

Electrical Seminary: Dr. Duncan, Mr. Hering, and Mr. Geer. *First Year Students:* Monday, 9 a. m.; *Second Year Students:* Wednesday, 10 a. m. (29).

Anderson, W. P.
Bateman.
Baugher.
Bissing.
Boude.
Brackett.
Branch, B. H.
Corning.
Cottman.
Darrell.
Gallaudet.
Hains, P. C.
Hayes.
Hill, G. H.
Howard.
Maccoun.
McCrosky.
McIver.
Mullen.
Norris, H. H.
Ridgely.
Roberts, F.
Rogers.
Rothermel.
Smoot.
Straus.
Taylor, J. S.
Thomas, F. McS.
White.

Steam and Hydraulic Engineering: Mr. Hering. Monday and Tuesday, 11 a. m. (17).

Anderson, W. P.
Bissing.
Corning.
Cottman.
Darrell.
Hains, P. C.
Hayes.
Howard.
Maccoun.
McCrosky.
Norris, H. H.
Randolph.
Roberts, F.
Straus.
Taylor, J. S.
Thomas, F. McS.
White.

Laboratory Methods: Mr. Hering. Wednesday, 11 a. m. (16).

Bateman.
Baugher.
Bissing.
Boude.
Brackett.
Branch, B. H.
Gallaudet.
Hains, P. C.
Hill, G. H.
McIver.
Mullen.
Ridgely.
Rogers.
Rothermel.
Smoot.
Wilcox.

Kinematics of Machinery: Mr. Geer. Monday and Tuesday, 11 a. m. (15).

Bateman.
Boude.
Brackett.
Branch, B. H.
Gallaudet.
Hill, G. H.
McCrosky.
McIver.
Mullen
Norris, H. H.
Penniman.
Ridgely.
Rothermel.
Smoot.
Wilcox.

Laboratory Work: Professor Rowland, Dr. Duncan, Dr. Ames, Mr. Hering, Mr. Geer. Daily, 9 a. m. to 5 p. m. (108).

Allen.
Anderson, W. P.
Aull.
Bateman.
Baugher.
Beatty.
Bissing.
Bliss.
Boude.
Bowlus.
Brackett.
Branch, B. H.
Carmichael.
Clark, C. B.
Corning.
Cottman.
Crane.
Darrell.
Day, W. S.
Deutsch.
Dorsey, N. E.
Douglas.
Eisenbrandt.
Elder.
Fay.
Ferry.
Friese.
Gallaudet.
Gordon.
Griswold.
Hains, P. C.
Harriman.
Harrison, C. N.
Hayes.
Henderson.
Hill, G. H.
Hill, M.
Hite.
Hodges.
Hoffman.
Howard.
James, G. O.
Johnson, F. H.
Johnson, T. W.
Kennard.
King.
Lackey.
Langfeld.
Lawson.
Lewis, E. P.
Maccoun.
Mackay.
Maltby, F. S.
McCaskell.
McClain.
McCrosky.
McIver.
McKee, G. C.
McKenzie.
More, L. T.
Morris, J. S.
Morrison, A. M.
Mullen.
Nelson.
Norris, H. H.
Northrup.
Page.
Parker, H. P.
Penniman.
Pindell.
Piper.
Porter.
Powell.
Ramm.
Randolph.
Reber.
Reeder.
Reid, H. F.
Ridgely.
Roberts, E. H.
Roberts, F.
Rogers.
Rothermel.
Rutter.
Schenck.
Schwab.
Sharpe.
Singewald.
Squier.
Smoot.
Stoner, L.
Straus.
Taylor, J. S.
Thom.
Thomas, F. McS.
Thomas, J. H.
Tillman.
Torrence.
Tudor, C. G.
Uhler.
Waters.
Watts.
White.
Wilcox.
Williams, H.
Wilson, W. S.
Wolff.
Zahm.

Chemistry. (111 Students).

Classes meet in the Chemical Laboratory, unless otherwise stated.

Chemistry of the Compounds of Carbon: (*For Graduate Students*): Professor Remsen. Daily, 9 a. m. (37).

Alleman.
Base.
Blalock.
Bromwell.
Bucher.
Cameron, F. K.
Chamberlin.
Chambers, A. D.
Fay.
Franklin, E. C.
Freeman.
Gray, G. W.
Griffin, J. J.
Hartman, R. N.
Henderson.
Higbee.
Hite.
Hollis.
Hunter.
Karslake.
Ludlow.
Mackay.
Magruder, E. W.
McKee, S. R.
McKenzie.
Moale.
Newell.
Norris, J. F.
Reid, E. L.
Saunders.
Shields.
Slagle.
Stoner, L.
Strickler.
Walker.
Weida.
Yeomans.

Journal Meetings: Professor Remsen. Saturday, 9 to 10.30 a. m. (29). The Instructors in Chemistry and the following students:

Base.
Blalock.
Bucher.
Cameron, F. K.
Chamberlin.
Chambers, A. D.
Fay.
Franklin, E. C.
Gray, G. W.
Griffin, J. J.
Hartman, R. N.
Higbee.
Hite.
Hollis.
Hunter.
Karslake.
Magruder, E. W.
McKee, S. R.
McKenzie.
Moale.
Newell.
Norris, J. F.
Parks.
Saunders.
Slagle.
Stoner, L.
Walker.
Weida.
Yeomans.

Quantitative Methods: Professor Morse. Friday, 4 p. m. (30).

Alleman.
Base.
Blalock.
Bromwell.
Bucher.
Cameron, F. K.
Chamberlin.
Chambers, A. D.
Fay.
Franklin, E. C.
Gray, G. W.
Griffin, J. J.
Hartman, R. N.
Hollis.
Hite.
Hunter.
Karslake.
Magruder, E. W.
McKee, S. R.
McKenzie.
Moale.
Newell.
Norris, J. F.
Reid, E. L.
Saunders.
Slagle.
Stoner, L.
Walker.
Weida.
Yeomans.

Chemistry of the Compounds of Carbon: (*Major Course*): Professor Morse. Wednesday, Thursday, and Friday, 9 a. m. (20).

Beyer.
Bowlus.
Brown, L.
Buckler.
Crane.
Frost.
Gray, G. H.
Johnson, T. W.
Langfeld.
Magruder, E. P.
Maltby, F. S.
Piper.
Pleasants.
Prindle.
Rosenheim.
Rusk.
Strobel.
Thom.
Thomas, J. H.
Waters.

Elementary Mineralogy: (*Major Course*): Dr. Randall. Monday and Tuesday, 9 a. m. (17).

Bowlus.
Brown, L.
Buckler.
Crane.
Frost.
Gray, G. H.
Johnson, T. W.
Magruder, E. P.
Piper.
Pleasants.
Rosenheim.
Rusk.
Schenck.
Strobel.
Thom.
Thomas, J. H.
Waters.

General Chemistry: (*Minor Course*): Professor Renouf and Dr. Randall. Daily, 9 a. m., Hopkins Hall. (48).

Aull.
Baker, A. E.
Beatty.
Binswanger.
Branch, C. H. H.
Cone.
Conrad.
Eisenbrandt.
Gordon.
Graham.
Harriman.
Hauser.
Hendrickson.
Hill, M.
Hodges.
Janney.
Johnson, F. H.
Kaufman.
Kennard.
Kilvert.
King.
Krafft.
Lanahan,
Lawson.
Maynard.
McCaskell.
Oliver.
Page.
Parker, H. P.
Pickel.
Post.
Powell.
Purnell.
Reeder.
Schwab.
Singewald.
Stevens, A. R.
Stiles.
Taylor, F. J.
Thomas, R.
Torrence.
Trull.
Tudor, C. O.
Wallis.
Ware.
Whitaker.
Williams, W. W.
Zahm.

Laboratory Work: Professor Remsen, Professor Morse, Professor Renouf, Dr. Randall, and Dr. Gilpin. Daily, 9 a. m. to 5 p. m. (109).

Alleman.
Aull.
Austin.
Baker, A. E.
Base.
Beatty.
Beyer.
Binswanger.
Blalock.
Bowlus.
Branch, C. H. H.
Bromwell.
Brown, L.
Bucher.
Buckler.
Cameron, F. K.
Chamberlin.
Chambers, A. D.
Cone.
Conrad.
Crane.
Eisenbrandt.
Elder.
Fay.
Franklin, E. C.
Freeman.
Frost.
Gordon.
Graham.
Gray, G. H.
Gray, G. W.
Griffin, J. J.
Harriman.
Hartman, R. N.
Hauser.
Henderson.
Hendrickson.
Higbee.
Hill, M.
Hite.
Hodges.
Hollis.
Hunt, R.
Hunter.
Janney.
Johnson, F. H.
Johnson, T. W.
Karslake.
Kaufman.
Kennard.
Kilvert.
King.
Krafft.
Lanahan.
Langfeld.
Lawson.
Mackay.
Magruder, E. P.
Magruder, E. W.
Maltby, F. S.
Maynard.
McCaskell.
McKee, S. R.
McKenzie.
Moale.
Newell.
Norris, J. F.
Oliver.
Page.
Parker, H. P.
Parks.
Pickel.
Piper.
Pleasants.
Post.
Powell.
Prindle.
Purnell.
Reeder.
Reid, E. L.
Rosenheim.
Rusk.
Saunders.
Schwab.
Schenck.
Singewald.
Slagle.
Smith, G. O.
Stevens, A. R.
Stiles.
Stoner, L.
Strickler.
Strobel.
Taylor, F. J.
Thom.
Thomas, J. H.
Thomas, R.
Torrence.
Trull.
Tudor, C. G.
Walker.
Wallis.
Ware.
Waters.
Weida.
Whitaker.
Williams, W. W.
Yeomans.
Zahm.

Mineralogy and Geology. (29 Students).

Mineralogy: Professor Williams. Monday, Tuesday, Wednesday, Thursday, 12 m., and Monday, 2.30–5 p. m., 602 Howard St. (22).

Alleman.
Bagg.
Base.
Beyer.
Blalock.
Brumwell.
Fay.
Franklin, E. C.
Gane.
Higbee.
Hollis.
Hunter.
Karslake.
Lewis, J. V.
McKee, S. R.
Nitze, H. B. C.
Platt.
Prindle.
Reid, E. L.
Smith, G. O.
Weida.
Yeomans.

Advanced Lectures on Metamorphism: Professor Williams. Wednesday, Thursday, and Friday, 10 a. m., 602 Howard St. (10).

Bagg.
Beyer.
Gane.
Grimsley.
Lewis, J. V.
Mathews.
Nitze, H. B. C.
Platt.
Prindle.
Smith, G. O.

Petrography: (*Laboratory Work*): Professor Williams. Daily, 9 a. m. to 5 p. m., 602 Howard St. (8).

Beyer.
Grimsley.
Lewis, J. V.
Mathews.
Nitze, H. B. C.
Platt.
Prindle.
Smith, G. O.

General Geology: Dr. Clark. Monday, Tuesday, and Wednesday, 11 a. m., and Wednesday, 2–5 p. m., 712 Howard St. (15).

Bagg.
Beyer.
Bromwell.
Chambers, A. D.
Gane.
Gray, G. W.
Grimsley.
Higbee.
Mathews.
Nitze, H. B. C.
Platt.
Prindle.
Roberts, D. E.
Shattuck.
Smith, G. O.

Palaeontology: Dr. Clark. Monday, Tuesday, and Wednesday, 9 a. m., Tuesday and Wednesday, 2–5 p. m., 712 Howard St. (11).

Bagg.
Bigney.
Beyer.
Gane.
Grimsley.
Mathews.
Nitze, H. B. C.
Platt.
Roberts, D. E.
Shattuck.
Smith, G. O.

Advanced Palaeontology: (*Laboratory Work*): Dr. Clark. Daily, 9 a. m. to 5 p. m., 712 Howard St. (4).

Bagg.
Gane.
Roberts, D. E.
Shattuck.

Journal Meeting: Professor Williams and Dr. Clark. Saturday, 12 m., 602 Howard St. (12).

Bagg.
Beyer.
Gane.
Grimsley.
Lewis, J. V.
Mathews.
Nitze, H. B. C.
Platt.
Prindle.
Roberts, D. E.
Shattuck.
Smith, G. O.

Biology. (55 Students).

Classes meet in the Biological Laboratory.

Principles of Zoology: Professor Brooks. Wednesday, Thursday, and Friday, 11 a. m., until April 1. (12).

Bigney.
Britcher.
Harrison, R. G.
Johnson, D. S.
Knower.
Lamb.
Lefevre.
Lotsy.
Needham.
Pickel.
Shields.
Sigerfoos.

Morphological Seminary: Professor Brooks. Tuesday, 11 a. m. (9).

Britcher.
Harrison, R. G.
Johnson, D. S.
Knower.
Lamb.
Lefevre.
Metcalf.
Needham.
Sigerfoos.

Journal Club: Professors Brooks and Howell. Monday, 11 a. m. (14).

Bigney.
Britcher.
Harrison, R. G.
Hunt, R.
Johnson, D. S.
Kemp.
Knower.
Lamb.
Lefevre.
Ludlow.
Metcalf.
Pickel.
Shields.
Sigerfoos.

Physiological Seminary: Professor Howell. Monday and Tuesday, 10 a. m. (12).

Bigney.
Britcher.
Harrison, R. G.
Hunt, R.
Johnson, D. S.
Kemp.
Knower.
Lamb.
Ludlow.
Pickel.
Shields.
Sigerfoos.

Animal Physiology: Professor Howell. Wednesday, Thursday, and Friday, 12 m. (14).

Baer.
Baumgarten.
Benson.
Cox.
Dawson.
Hastings.
Johnson, D. S.
Ludlow.
Maltby, F. S.
Marshall.
Miles.
Needham.
Shields.
Sigerfoos.

Animal Physiology: (*For the Students of the Medical School*): Professor Howell. Wednesday, 11 a. m., Thursday and Friday, 12 m. (16).

Bardeen.
Brown, T. R.
Church, Miss.
Davis.
Day, L. W.
Glover, Miss.
Hamburger.
Hunner.
Lyon.
McBryde, C. N.
McCulloh.
Nichols.
Packard, Miss.
Pancoast.
Penrose.
Strong.

General Zoology: Dr. Andrews. Monday and Tuesday, 12 m. (17).

Baer.
Baumgarten.
Bigney.
Britcher.
Benson.
Cox.
Dawson.
Ewing.
Hastings.
Hunt, R.
Lefevre.
Maltby, F. S.
Marshall.
Miles.
Needham.
Shields.
Sigerfoos.

General Biology: Dr. Andrews. Daily, 10 a. m. until April 1. (18).

Bigney.
Brown, L.
Brown, T. R.
Buckler.
Ewing.
Gray, G. H.
Langfeld.
Magruder, E. P.
Maltby, F. S.
Morss, J. S.
Needham.
Pleasants.
Roberts, D. E.
Rosenheim.
Rusk.
Strobel.
Sigerfoos.
Williams, W. W.

Elements of Embryology: Dr. Andrews. Monday, Tuesday and Wednesday, 10 a. m., after April 1. (19).

Bigney.
Brown, L.
Brown, T. R.
Buckler.
Ewing.
Gray, G. H.
Johnson, D. S.
Langfeld.
Magruder, E. P.
Maltby, F. S.
Morss, J. S.
Needham.
Pleasants.
Roberts, D. E.
Rosenheim.
Rusk.
Strobel.
Sigerfoos.
Williams, W. W.

Introduction to Systematic Botany: Dr. Barton. Thursday and Friday, 10 a. m., after April 1. (18).

Bigney.
Brown, L.
Brown, T. R.
Buckler.
Ewing.
Gray, G. H.
Langfeld.
Magruder, E. P.
Maltby, F. S.
Morss, J. S.
Needham.
Pleasants.
Roberts, D. E.
Rosenheim.
Rusk.
Strobel.
Sigerfoos.
Williams, W. W.

Morphology of Plants: Dr. Lotsy. Monday, Thursday, and Saturday, 9 a. m. (4).

Barton, B. W.
Johnson, D. S.
Shields.
Sigerfoos.

Advanced Botany: (*Laboratory Work*): Dr. Lotsy. Daily, 9 a. m. to 5 p. m. (1).

Johnson, D. S.

Laboratory Work: Professor Brooks, Professor Howell, Dr. Andrews, Dr. Dreyer, Dr. Barton, Dr. Lotsy. Daily, 9 a. m. to 5 p. m. (52).

Baer.
Bardeen.
Baumgarten.
Benson.
Bigney.
Britcher.
Brown, L.
Brown, T. R.
Buckler.
Church, Miss.
Cox.
Davis.
Dawson.
Day, L. W.
Ewing.
Glover, Miss.
Gray, G. H.
Hamburger.
Harrison, R. G.
Hastings.
Hunner.
Hunt, R.
Johnson, D. S.
Kemp.
Knower.
Lamb.
Langfeld.
Lefevre.
Ludlow.
Lyon.
Magruder, E. P.
Maltby, F. S.
Marshall.
McBryde, C. N.
McCulloh.
Miles.
Morss, J. S.
Needham.
Nichols.
Packard, Miss.
Pancoast.
Penrose.
Pickel.
Pleasants.
Roberts, D. E.
Rosenheim.
Rusk.
Shields.
Sigerfoos.
Strobel.
Strong.
Williams, W. W.

Greek. (41 Students.)

Greek Seminary: (*Plato*): Professor Gildersleeve. Monday and Wednesday, 10 a. m., Classical Library. (21).

Anderson, J. N.
Bolling.
Brown, J. V.
Dales.
Daniel.
Gallaway.
Haggett.
Hoeing.
Johnson, C. W. L
Kane.
Kirk.
Laing.
Long, O. F.
Peppler.
Radford.
Scott, J. A.
Soho.
Spencer.
Stratton.
Wilson, H. L.
Wolfenstein.

Epic Poetry: (*Readings in Homer*): Professor Gildersleeve. Friday, 10 a. m., Classical Library. (26).

Anderson, J. N.
Bolling.
Brown, J. V.
Dales.
Daniel.
Edwards.
Gallaway.
Haggett.
Hoeing.
Johnson, C. W. L.
Johnston, G. W.
Kane.
Kirk.
Laing.
Lease.
Long, O. F.
Magruder, W. H.
Peppler.
Radford.
Scott, J. A.
Soho.
Sparks, C. B.
Spencer.
Stratton.
Wilson, H. L.
Wolfenstein.

History of Greek Philosophy: Professor Gildersleeve. Tuesday, 10 a. m., Classical Library. (23).

Anderson, J. N.
Bolling.
Brown, J. V.
Dales.
Daniel.
Gallaway.
Haggett.
Hoeing.
Johnson, C. W. L.
Kane.
Kirk.
Laing.
Lease.
Long, O. F.
Peppler.
Radford.
Scott, J. A.
Soho.
Sparks, C. B.
Spencer.
Stratton.
Wilson, H. L.
Wolfenstein.

Plato: (*Lectures*): Professor Gildersleeve. Thursday, 10 a. m., Classical Library. (24).

Anderson, J. N.
Bolling.
Brown, J. V.
Dales.
Daniel.
Gallaway.
Haggett.
Hoeing.
Johnson, C. W. L.
Johnston, G. W.
Kane.
Kirk.
Laing.
Long, O. F.
Magruder, W. H.
Peppler.
Radford.
Scott, J. A.
Soho.
Sparks, C. B.
Spencer.
Stratton.
Wilson, H. L.
Wolfenstein.

Sight Reading: Dr. Spieker. Wednesday, 1 p. m., 303 Monument St. (4).

Baker, A. E.
Hauser.
Krafft.
Morss, J. S.

Aeschylus; Sophocles; Greek Literature: Dr. Spieker. Tuesday, Wednesday, Thursday, and Friday, 12 m., 303 Monument St. (9).

Black.
Branch, C. H. H.
Brown, G. D.
Griffin, N. E.
Killmon.
Krafft.
Long, O. F.
Poetter.
Trull.

Homer, *Odyssey*; ***Euripides:*** Dr. Spieker. Tuesday, Wednesday, Thursday, and Friday, 11 a. m., 303 Monument St. (5).

Gantz.
Machen.
Sioussat.
Sparks, C. B.
Sumwalt.

Aristotle: *Rhetoric and Nicomachean Ethics:* Dr. Miller. Tuesday and Friday, 9 a. m., Front Building, Room 13. (4).

Brown, J. V.
Scott, J. A.
Spencer.
Wolfenstein.

Syntactical Society: Dr. Miller. Thursday, 9 a. m., Front Building, Room 13. (7).

Bolling.
Dales.
Gallaway.
Kirk.
Peppler.
Radford.
Spencer.

Modern Greek: Mr. Soho. Monday, 9 a. m., Wednesday, 12 m., Front Building, Room 13. (5).

Brown, J. V.
Frost.
Pridgen.
Spencer.
Stratton.

Prose Composition: Dr. Spieker.

Major Course: Monday, 12 m., 303 Monument St. (8).

Black.
Branch, C. H. H.
Brown, G. D.
Griffin, N. E.
Killmon.
Krafft.
Poetter.
Trull.

Minor Course: Monday, 11 a. m., 303 Monument St. (5).

Gantz.
Machen.
Sioussat.
Sparks, C. B.
Sumwalt.

Latin. (47 Students).

Classes meet in Front Building, Room 7, except as otherwise stated.

Latin Seminary: (*Cicero's Orations and Letters*): Professor Warren. Tuesday and Friday, 11 a. m. (25).

Anderson, J. N.
Brown, J. V.
Daniel.
Edwards.
Folk.
Fraser, W. R.
Gallaway.
Haggett.
Hoeing.
Johnson, W. H.
Johnston, G. W.
Kane.
Kirk.
Laing.
Lease.
Long, O. F.
Magruder, W. H.
Peppler.
Radford.
Scott, J. A.
Simonds, S.
Soho.
Spencer.
Wilson, H. L.
Wolfenstein.

Latin Palaeography: Professor Warren. Wednesday, 11 a. m. (23).

Bolling.
Brown, J. V.
Daniel.
Edwards.
Folk.
Haggett.
Hoeing.
Johnson, W. H.
Johnston, G. W.
Kane.
Kirk.
Laing.
Lease.
Long, O. F.
Magruder, W. H.
Peppler.
Radford.
Scott, J. A.
Simonds, S.
Soho.
Spencer.
Wilson, H. L.
Wolfenstein.

Historical Latin Grammar: Professor Warren. Thursday, 11 a. m. (24).

Bolling.
Brown, J. V.
Daniel.
Edwards.
Folk.
Gallaway.
Hoeing.
Johnson, W. H.
Johnston, G. W.
Kane.
Kirk.
Laing.
Lease.
Long, O. F.
Magruder, W. H.
Peppler.
Radford.
Scott, J. A.
Simonds, S.
Soho.
Spencer.
Stratton.
Wilson, H. L.
Wolfenstein.

Journal Club: Professor Warren. Alternate Saturdays, 9 a. m. (16).

Daniel.
Edwards.
Folk.
Hoeing.
Johnson, W. H.
Johnston, G. W.
Kane.
Kirk.
Laing.
Lease.
Long, O. F.
Magruder, W. H.
Radford.
Spencer.
Wilson, H. L.
Wolfenstein.

Practical Exercises: Dr. Smith. Monday, 11 a. m. (19).

Brown, J. V.
Daniel.
Edwards.
Folk.
Haggett.
Hoeing.
Johnson, W. H.
Johnston, G. W.
Kane.
Laing.
Lease.
Long, O. F.
Magruder, W. H.
Peppler.
Scott, J. A.
Soho.
Spencer.
Wilson, H. L.
Wolfenstein.

Terence and Plautus: Professor Warren. Tuesday, Wednesday, and Friday, 10 a. m. (5).

Black.
Branch, C. H. H.
Brown, G. D.
Krafft.
Poetter.

Sight Reading: Dr. Smith. Thursday, 10 a. m., 303 Monument St. (5).

Black.
Branch, C. H. H.
Brown, G. D.
Krafft.
Poetter.

Horace: Dr. Smith. Tuesday, Wednesday, Thursday, and Friday, 9 a. m., 303 Monument St. (15).

Adams, T. S.
Block.
Clark, C. C.
Diehl.
Gantz.
Kurrelmeyer.
Luchs.
Machen.
Marine.
Shaw.
Sioussat.
Sumwalt.
Trippe.
Upshur.
Welhourn.

Prose Composition: Dr. Smith.

Major Course: Monday, 10 a. m., 303 Monument St. (5).

Black.
Branch, C. H. H.
Brown, G. D.
Krafft.
Poetter.

Minor Course: Monday, 9 a. m., 303 Monument St. (12).

Block.
Clark, C. C.
Diehl.
Gantz.
Kurrelmeyer.
Luchs.
Machen.
Marine.
Shaw.
Sioussat.
Sumwalt.
Upshur.

Sanskrit and Comparative Philology. (43 Students).

Classes meet in the Front Building, Room 13.

Comparative Philology: Professor Bloomfield. Monday, 4 p. m. (28).

Baker, A. E.
Baker, T. S.
Bonnotte.
Chandler.
Crenshaw.
DeHaan.
Furst.
Folk.
Griffin, N. E.
Haggett.
Hauser.
Hoeing.
Jenkins.
Johnson, W. H.
Krafft.
Laing.
Long, O. F.
Marden.
Morss.
Pessels.
Radford.
Scott, J. A.
Sewall.
Symington.
Trull.
West, H. S.
Wilson, H. L.
Woods, C. F.

Comparative Grammar of Greek, Latin, German, Etc.: Professor Bloomfield. Wednesday, 4 p. m. (22).

Bolling.
Dales.
Edwards.
Fraser, W. R.
Gallaway.
Haggett.
Hoeing.
Johnson, W. H.
Johnston, G. W.
Kane.
Kirk.
Krafft.
Laing.
Lease.
Long, O. F.
Peppler.
Radford.
Scott, J. A.
Spencer.
Stratton.
Wilson, H. L.
Wolfenstein.

Vedic Seminary: (*Critical Study of the Atharva Veda*): Professor Bloomfield. Thursday, 4 p. m. (5).

Bolling.
Edwards.
Radford.
Simonds, T. S.
Stratton.

Zend and the Zend Avesta: Professor Bloomfield. Tuesday, 1 p. m. (3).

Bolling.
Dales.
Stratton.

Introduction to the Study of the Veda: Mr. Stratton. Tuesday, 12 m. (7).

Dales.
Gallaway.
Johnston, G. W.
Kirk.
Peppler.
Radford.
Spencer.

Hitopadeça and Manu: Professor Bloomfield. Friday, 12 m. (6).

Dales.
Gallaway.
Kirk.
Peppler.
Radford.
Spencer.

Elementary Sanskrit: (*Nala*): Professor Bloomfield. Tuesday and Friday, 4 p. m. (7).

Haggett.
Hoeing.
Johnson, W. H.
Long, O. F.
Scott.
Wilson, H. L.
Wolfenstein.

Oriental Seminary. (32 Students).

Classes meet in Front Building, Room 14.

Analysis of the Hexateuch: Professor Haupt. Friday, 5 p. m. (25).

Caldwell.
Carmichael.
Chandler.
Gorrell.
Haggett.
Hendren.
James, B. B.
Johnson, F. H.
Johnston, C.
Johnston, G. W.
Jones.
Long, O. F.
Radford.
Reizenstein.
Rothermel.
Rutter.
Sewall.
Stevens, D. G.
Takaki.
Tracey.
Tupper.
Watts.
Weaver.
Welda.
Wolfenstein.

Leviticus: (*Critical Interpretation*): Professor Haupt. Monday, 4 p. m. (6).

Caldwell.
Johnston, C.
Sparks, C. B.
Stevens, D. G.
Tracey.
Weaver.

Elementary Hebrew: Professor Haupt. Monday, 3 p. m., Thursday, 5 p. m. (10).

Baker, A. E.
Branch, C. H. H.
Caldwell.
Hendren.
Poetter.
Sparks, C. B.
Stevens, D. G.
Trull.
Weaver, E. E.
Wolfenstein.

Hebrew Prose Composition: Professor Haupt. Alternate Mondays, 5 p. m. (3).

Johnston, C.
Sparks, C. B.
Stevens, D. G.

Hebrew Exercises: Dr. Johnston. Friday, 3 p. m. (3).

Caldwell.
Sparks, C. B.
Tracy.

Arabic Prose Composition: Professor Haupt. Alternate Mondays, 5 p. m. (4).

De Haan.
Johnston, C.
Marden.
Stevens, D. G.

Arabic Exercises: Dr. Johnston. Wednesday, 3 p. m. (1).

Stevens, D. G.

Elementary Arabic: Dr. Johnston. Friday, 4 p. m. (3).

De Haan.
Marden.
Tracy.

Assyrian Seminary: Professor Haupt. Thursday, 3 p. m. (3).

Johnston, C.
Stevens, D. G.
Weaver.

Assyrian: (*Second Year Course*): Dr. Johnston. Tuesday, 3–5 p. m. (1).

Stevens, D. G.

History of the Ancient East: Dr. Johnston. Tuesday, 5 p. m. (2).

Stevens, D. G.
Trull.

German. (73 Students).

Classes meet at 715 Eutaw Street, except as otherwise stated.

German Seminary: Professor Wood.

(a) *Goethe's Faust:* Monday, Tuesday, and Thursday, 11 a. m. (9).

Baker, T. S.
Child.
Crenshaw.
Haussmann.
Newell.
Pessels.
Schmidt.
West, C. J.
Woods, C. F.

(b) *Wolfram's Parzival:* Friday, 9 a. m. (7).

Baker, T. S.
Haussmann.
Kinard.
McBryde, J. M.
Schmidt.
West, C. J.
Woods, C. F.

Gothic: Professor Wood. Wednesday and Thursday, 9 a. m. (5).

Arnold, H. L.
Chandler.
Kinard.
McBryde, J. M.
Schmidt.

Germanic Society: Alternate Thursdays, 8 p. m. (13).

Baker, T. S.
Child.
Crenshaw.
Ebeling.
Haussmann.
Kinard.
McBryde, J. M.
Newell.
Pessels.
Schmidt.
Shipley.
West, C. J.
Woods, C. F.

Seventeenth Century Literature: Professor Wood. Tuesday, 9 a. m. (9).

Baker, T. S.
Crenshaw.
Haussmann.
Kinard.
McBryde, J. M.
Newell.
Schmidt.
Shipley.
Woods, C. F.

Luther and New High German: Dr. Learned. Monday and Wednesday, 12 m. (6).

Baker, T. S.
Crenshaw.
Ebeling.
Haussmann.
Schmidt.
Woods, C. F.

Middle High German: (*Hartmann's Gregorius*): Dr. Learned. Monday, 9 a. m. (4).

Child.
Pessels.
Schmidt.
West, C. J.

Historical German Grammar: Dr. Vos. Monday, Wednesday, and Friday, 3 p. m. (2).

Ebeling.
Schmidt.

(Major Course).

Classics: *Goethe, Faust:* Professor Wood. Monday and Friday, 10 a. m.; ***History of German Literature; Prose Composition:*** Dr. Learned. Wednesday and Thursday, 10 a. m.; ***Prose Readings:*** *Freytag, Karl der Grosse:* Dr. Vos. Tuesday, 10 a. m. (6).

Armstreng.
Cone.
Furst.
Griffin, N. E.
Harvey.
Newell.

(Minor Course A).

Prose Readings: *Briefwechsel zwischen Schiller und Goethe:* Professor Wood. Wednesday, 11 a. m.; *Freytag, Aus dem Staat Friedrichs des Grossen:* Dr. Learned. Friday, 11 a. m.; ***Classics:*** *Schiller, Wilhelm Tell; Heine, Harzreise:* Dr. Learned. Monday and Tuesday, 11 a. m.; ***Prose Composition:*** Dr. Learned. Thursday, 11 a. m. (23).

Adams, T. S.
Armstreng.
Bentley.
Carson.
Caspari.
Collier.
Dorsey, W. R.
Downin.
Gassman.
Harden.
Janney.
Knight.
Lacy.
Lilly.
Page.
Pleasants.
Ritchie.
Schmeckebier.
Strohel.
Torsch.
Trippe.
Welbourn.
Williams, H.

(Minor Course B).

Riehl, *Burg Neideck;* ***Schiller,*** *Wilhelm Tell;* ***Goethe,*** *Egmont;* ***Prose Composition:*** Dr. Vos. Daily, 11 a. m., 303 Monument St. (13).

Black.
Deutsch.
Eldridge.
Ewing, C. B.
Gray, G. H.
Killmon.
Lawseu.
Marine.
McCornick, C. K.
McCornick, W. S.
Morss, J. S.
Nelson.

Historical and Scientific Readings: (*Freytag, Aus neuer Zeit*): Dr. Vos. Monday and Thursday, 5 p. m. (25).

Aull.
Bennotte.
Chambers, H. E.
Chandler.
Chapman.
Cooley.
Ebaugh.
Estes.
Felk.
Fraser, W. R.
Gresham.
Griffin, J. J.
Harrisen, C. N.
Hartman, E. T.
Hunt, R. D.
Johnsten, O. M.
Jones.
Mackay.
Meran.
Roberts, E. H.
Sewall.
Takaki
Thomsen, F. D.
Watts.
Weaver.

Romance Languages. (62 Students).

Classes meet at 715 Eutaw Street, except as otherwise stated.

Old French Seminary: (*Fables of Marie de France*): Professor Elliott. Thursday, 11 a. m. to 1 p. m. (11).

Armstreng.
Bonnatte.
De Haan.
Jenkins.
Johnsten, O. M.
Keidel.
Kleuner.
Marden.
Pridgen.
Symington.
Thieme.

Spanish Philology: (*Poema del Cid*): Professor Elliott. Monday and Tuesday, 11 a. m. (8).

Bonnette.
De Haan.
Jenkins.
Keidel.
Klenner.
Mardeu.
Pridgen.
Symington.

Popular Latin: Professor Elliott. Wednesday, 11 a. m. (9).

Armstreug.
Bonnotte.
Jenkins.
Johnsan, O. M.
Keidel.
Marden.
Pridgen.
Symiogten.
Thieme.

Romance Club: Professor Elliott. Monday, 12 m. (10).

Bannotte.
De Haan.
Jenkius.
Johnsten, O. M.
Keidel.
Klenner.
Mardeu.
Pridgeu.
Symingtou.
Thieme.

Modern Spanish Literature: Mr. De Haan. Wednesday, 12 m.; ***Contemporary Italian Literature:*** Dr. Menger. Alternate Fridays, 11 a. m. (10).

Armstrnng.
Bannatte.
Jenkins.
Johnsten, O. M.
Keidel.
Klenner.
Marden.
Pridgen.
Symingten.
Thieme.

Old French: (*Practical Exercises*): Dr. Menger. Friday, 10 a. m. (10).

Baker, T. S.
De Haan.
Frost.
Johusten, O. M.
Keidel.
Pridgeu.
Soho.
Thieme.
West, C. J.
Woeds, C. F.

Old French Phonology and Morphology: Dr. Menger. Monday and Wednesday, 10 a. m. (8).

Bennotte.
De Haan.
Frost.
Jehnsten, O. M.
Keidel.
Pridgen.
Thieme.
West, C. J,

Old French Texts: Dr. Menoer. Tuesday and Thursday, 10 a. m. (9).

Armstreng.
Baker, T. S.
De Haan.
Frnst.
Johosten, O. M.
Keidel.
Thieme.
West, C. J.
Woeds, C. F.

Italian: Dr. Menoer. Tuesday, Wednesday, and Friday, 9 a. m. (9).

Ames, J. G.
Armstreng.
Cameron, T. F. P.
Johnston, O. M.
Nitze, W. A.
Reizenstein.
Thieme.
West, J. M.
Wood, C. C.

Spanish: Mr. De Haan. Tuesday, 3 p. m., Thursday, 9 a. m. (9).

Armstroug.
Cameren, T. F. P.
Clutz.
Jnhuston, O. M.
Lacy.
Nitze, W. A.
Reizenstein.
West, J. M.
Wood, C. C.

French: (*Major Course*): Dr. Rambeau. Monday, Wednesday, Thursday, and Friday; Mr. Bonnotte. Tuesday, 10 a. m., 303 Monument St. (7).

Ames, J. G.
Becker.
Cameron, T. F. P.
Janney.
Kilvert.
Nitze, W. A.
Tysen.

French: (*Minor Course: First Section*): Dr. Rambeau. Monday, Tuesday, Wednesday, and Thursday; Mr. Bonnotte. Friday, 12 m., 303 Monument St. (17).

Armstrong.
Bansemer.
Bissing.
Buckler.
Clark, C. B.
Dorsey, W. R.
Emerich.
Greenbaum.
James, G. O.
Kennard.
Oliver.
Robinsen.
Strickler.
Umstadter.
Waters.
Whitaker.
Wingert.

French: (*Minor Course: Second Section*): Dr. Rambeau. Monday, Tuesday, Wednesday, and Thursday; Mr. Bonnotte. Friday, 9 a. m., 303 Monument St. (7).

Allen.
Baumgarten.
Baer.
Coblens.
Cohen, M. S.
Miles.
Whitfield.

French: (*Minor Course B: First Section*): Mr. De Haan. Monday, Tuesday, Wednesday, and Friday; Mr. Bonnotte. Thursday, 9 a. m., (10).

Ballagh, W. W.
Bensen.
Beutley.
Calhoun.
Dawson.
Hastings.
Lackey.
Marshall.
Parker, J. D
Riley.

French: (*Minor Course B: Second Section*): Mr. Symington. Tuesday and Friday, 12 m., Thursday, 1 p. m. (5).

Baker, A. E.
Hauser.
Maynard.
Pindell.
Ramm.

English. (72 Students).

Classes meet at 715 Eutaw Street, except as otherwise stated.

English Seminary: (*Literature of the XIVth Century*): Professor Bright. Tuesday and Thursday, 3-5 p. m. (17).

Arnold, H. L.
Chandler.
Child.
Folk.
Furst.
Gerrell.
Haussmann.
Kinard.
Magruder, W. H.
McBryde, J. M.
Pessels.
Schmidt.
Shipley.
Sykes.
Tupper.
West, C. J.
West, H. S.

History of English Philology: (*Lectures*): Professor Bright. Tuesday, 12 m. (17).

Arneld, H. L.
Chaodler.
Child.
Folk.
Furst.
Gerrell.
Haussmann.
Kinard.
Magruder, W. H.
McBryde, J. M.
Pessels.
Schmidt.
Shipley.
Sykes.
Tupper.
West, C. J.
West, H. S.

Middle English Texts: (*Wyclif*): Professor Bright. Thursday, 12 m. (15).

Arnold, H. L.
Chandler.
Child.
Felk.
Furst.
Gerrell.
Haussmanu.
Kinard.
McBryde, J. M.
Pessels.
Schmidt.
Shipley.
Sykes.
Tupper.
West, C. J.

Middle English Grammar: Professor Bright. Friday, 12 m. (16).

Arnold, H. L.
Chandler.
Child.
Folk.
Furst.
Gerrell.
Haussmann.
Kinard.
Magruder, W. H.
McBryde, J. M.
Pessels.
Schmidt.
Shipley.
Sykes.
Tupper.
West, C. J.

Journal Meeting: Professor Bright. Alternate Mondays, 8-10 p. m. (17).

Arneld, H. L.
Chandler.
Child.
Folk.
Furst.
Gorrell.
Haussmann.
Kinard.
Magruder, W. H.
McBryde, J. M.
Pessels.
Schmidt.
Shipley.
Sykes.
Tupper.
West, C. J.
West, H. S.

Caroline Poets: Professor Browne. Wednesday, 12 m., 303 Monument St. (15).

Arneld, H. L.
Bump.
Chandler.
Child.
Gorrell.
Kinard.
McBryde, J. M.
Pessels.
Sewall.
Shipley.
Sykes.
Tupper.
Ward.
West, C. J.
West, H. S.

Anglo-Saxon: Professor Bright. Monday and Wednesday, 12 m. (6).

Ames, J. G.
Becker.
Folk.
Furst.
Magruder, W. H.
Post.

Fourteenth Century Literature; Early Scottish Poets: Professor Browne. Tuesday, Thursday, and Friday, 12 m., 303 Monument St. (5).

Ames, J. G.
Becker.
Bump.
Post.
Sewall.

English Literature: (*Minor Course*): Professor Browne. Daily, 11 a. m., 303 Monument St. (4).

Clark, C. C.
Kurrelmeyer.
Rosenheim.
Shaw.

English Literature: Professor Greene. Daily, 10 a. m., Front Building, Room 9. (15).

Cox.
Foster.
Frank.
Griswold.
Luchs.
Morison, N. H.
Rosenbaum.
Stein.
Strickler.
Uhler.
Warfield.
Whitfield.
Wickes.
Wingert.
Wood, C. C.

Rhetoric: (*P. H. E.*): Professor Greene. Monday and Tuesday, 12 m., Hopkins Hall. (43).

Adams, T. S.
Beatty.
Bentley.
Binswanger.
Block.
Carson.
Caspari.
Clark, C. C.
Collier.
Diehl.
Downin.
Eldridge.
Gantz.
Gassman.
Graham.
Harden.
Hendrickson.
Johnson, F. H.
Knight.
Kurrelmeyer.
Lacy.
Lanahan.
Lilly.
Luchs.
Machen.
Marine.
McCornick, W. S.
Parker, H. P.
Ritchie.
Rosenbaum.
Schmeckebier.
Sioussat.
Stevens, A. R.
Sumwalt.
Thomas, R.
Torsch.
Trippe.
Upshur.
Wallis.
Ware.
Warfield.
Welbourn.
West, J. M.

History and Politics. (134 Students).

Historical Seminary: Professor Adams. Alternate Thursdays, 8–10 p. m. (41).

Armstrong.
Ballagh, J. C.
Bassett.
Blakeslee.
Bowers.
Bryan.
Bump.
Chambers, H. E.
Chandler.
Chapman.
Cooley.
Estes.
Forman, S. E.
Gresham.
Hall, A. C.
Hall, L. B.
Hartman, E. T.
Haynes, J.
Hendren.
Hollander.
Hunt, R. D.
Ishizaka.
James, B. B.
Jones.
Latane.
Moore, H. L.
Moran.
Reeves.
Riley.
Sewall.
Silver.
Sparks, F. E.
Stevenson.
Takaki.
Thomas, T. P.
Thomson, F. D.
Turner.
Ward.
Wetzel.
Whealton.
Yeumans.

Prussian History: Professor Adams. Wednesday and Thursday, 10 a. m. (41).

Armstrong.
Ballagh, J. C.
Bassett.
Blakeslee.
Bowers.
Bryan.
Bump.
Chambers, H. E.
Chandler.
Chapman.
Cooley.
Estes.
Gresham.
Hall, A. C.
Hall, L. B.
Hartman, E. T.
Haynes, J.
Hendren.
Hollander.
Hunt, R. D.
Ishizaka.
James, B. B.
Jones.
Latane.
Marmor.
Moore, H. L.
Moran.
Nicholson.
Reeves.
Riley.
Sewall.
Silver.
Sparks, F. E.
Stevenson.
Takaki.
Thomson, F. D.
Turner.
Ward.
Wetzel.
Whealton.
Yeumans.

Church History: Professor Adams. Monday and Tuesday, 11 a. m. (31).

Arnold, H. L.
Ballagh, W. W.
Bansemer.
Blakeslee.
Brown, L.
Caldwell.
Chambers, H. E.
Coblens.
Cooley.
Emerich.
Estes.
Foster.
Greenbaum.
Harvey.
Hubner.
Johnston, O. M.
Jones.
Kaufman.
Kilvert.
Moran.
Mullikin.
Oliver.
Parker, J. D.
Riley.
Robinson.
Rusk.
Sewall.
Stiles.
Thieme.
Umstadter.
Williams, W. W.

Historical and Comparative Jurisprudence: Professor Emmott. Monday and Tuesday, 10 a. m. (18).

Bassett.
Blakeslee.
Chandler.
Chapman.
Gresham.
Hartman, E. T.
Hendren.
Jones.
Latane.
Marmor.
Mister.
Mullikin.
Reeves.
Riley.
Sparks, F. E.
Stevenson.
Turner.
Weeks.

Sources of English History: Professor Emmott. Friday, 10 a. m. (10).

Chandler.
Cooley.
Gresham.
Hendren.
Jones.
Mister.
Moran.
Silver.
Sparks, F. E.
Weeks.

English Constitutional Law and History: Professor Emmott. Wednesday and Thursday, 12 m. (27).

Bauernschmidt.
Bowers.
Bryan.
Chambers, H. E.
Chapman.
Cohen, M. S.
Cone.
Conrad.
Cooley.
Frank.
Hall, L. B.
Harvey.
Hendren.
Hunt, R. D.
Jones.
Latane.
Mister.
Moran.
Morison, N. H.
Reizenstein.
Riley.
Rutter.
Shirley.
Stein.
Turner.
Whitfield.
Wickes.

American Constitutional History: Dr. Steiner. Monday, Tuesday, and Friday, 12 m. (23).

Bauernschmidt.
Blakeslee.
Bowers.
Chapman.
Cohen, M. S.
Cone.
Cooley.
Conrad.
Frank.
Hall, L. B.
Harvey.
Haynes, J.
Moran.
Morison, N. H.
Reizenstein.
Rutter.
Shirley.
Silver.
Stein.
Turner.
Wetzel.
Whitfield.
Wickes.

American Political History: Dr. James Schouler. Wednesday, Thursday, and Friday, 11 a. m. (26).

Ballagh, J. C.
Bassett.
Blakeslee.
Bowers.
Bryan.
Bump.
Chambers, H. E.
Chapman.
Cooley.
Hall, L. B.
Hartman, E. T.
Haynes, J.
Hendren.
Hunt, R. D.
Ishizaka.
James, B. B.
Jones.
Latane.
Moran.
Riley.
Silver.
Sparks, F. E.
Stevenson.
Thomson, F. D.
Turner.
Wetzel.

Railway Problems: Professor H. C. Adams. Daily, 9 a. m. (28). (Twenty Lectures).

Ballagh, J. C.
Blakeslee.
Bowers.
Bryan.
Chambers, H. E.
Chapman.
Cooley.
Gresham.
Hall, A. C.
Hall, L. B.
Hartman, E. T.
Haynes, J.
Hendren.
Hollander.
Hunt, R. D.
Ishizaka.
James, B. B.
Jones.
Latane.
Moore, H. L.
Moran.
Sewall.
Sparks, F. E.
Stevenson.
Thomson, F. D.
Turner.
Wetzel.
Whealton.

Administration: Professor Woodrow Wilson. Daily, 9 a. m. (27). (Twenty-five Lectures).

Ballagh, J. C.
Bassett.
Blakeslee.
Bryan.
Bump.
Chambers, H. E.
Chapman.
Hall, A. C.
Hartman, E. T.
Haynes, J.
Hazen.
Hendren.
Hunt, R. D.
Ishizaka.
James, B. B.
Jones.
Latane.
Moore, H. L.
Reeves.
Sewall.
Sparks, F. E.
Takaki.
Thomson, F. D.
Turner.
Wetzel.
Whealton.
Yeumans.

Social Economics: Dr. Gould. Friday, 9 a. m. (23).

Ballagh, J. C.
Bowers.
Bryan.
Bump.
Chambers, H. E.
Cooley.
Hall, A. C.
Haynes, J.
Hendren.
Hollander.
Hunt, R. D.
Jones.
Moore, H. L.
Moran.
Sewall.
Sparks, F. E.
Stevenson.
Takaki.
Thomson, F. D.
Turner.
Ward.
Wetzel.
Whealton.

Theory of Consumption: Dr. Sherwood. Wednesday and Thursday, 9 a. m. (28).

Ballagh, J. C.
Bassett.
Blakeslee.
Bowers.
Bryan.
Chambers, H. E.
Chapman.
Cooley.
Gresham.
Hartman.
Haynes, J.
Hendren.
Hollander.
Hunt, R. D.
Ishizaka.
James, B. B.
Jones.
Latane.
Moore, H. L.
Moran.
Reeves.
Sewall.
Sparks, F. E.
Stevenson.
Thomson, F. D.
Turner.
Wetzel.
Whealton.

Recent Economic Literature: Dr. Sherwood. Thursday, 11 a. m. to 1 p. m. (6).

Bryan.
Haynes, J.
Hollander.
Moore, H. L.
Takaki.
Wetzel.

Economic Conference: Dr. Sherwood. Alternate Fridays, 8–10 p. m. (16).

Bowers.
Bryan.
Chapman.
Chambers, H. E.
Hartman, E. T.
Haynes, J.
Hollander.
James, B. B.
Jones.
Moore, H. L.
Stevenson.
Takaki.
Thomson, F. D.
Weaver.
Wetzel.
Whealton.

Elements and History of Political Economy: Dr. Sherwood. Daily, 1 p. m. (28).

Arnold, B. W.
Ballagh, J. C.
Ballagh, W. W.
Bansemer.
Chambers, H. E.
Coblens.
Emerich.
Foster.
Greenbaum.
Hartman, E. T.
Harvey.
Hubner.
James, B. B.
Johnson, E. H.
Kaufman.
Moore, H. L.
Oliver.
Parker, J. D.
Riley.
Robinson.
Simonds, W. A.
Stevenson.
Stiles.
Thomson, F. D.
Torrence.
Tyson.
Umstadter.
Whealton.

Historical Conference: Dr. Vincent. Alternate Saturdays, 8–10 p. m. (9).

Ballagh, J. C.
Bump.
Hall, L. B.
Hazen.
Hunt, R. D.
James, B. B.
Jones.
Latane.
Moran.

Economic and Social History of Europe: Dr. Vincent. Monday and Tuesday, 11 a. m. (20).

Bassett.
Blakeslee.
Bowers.
Bryan.
Bump.
Chandler.
Chapman.
Hall, L. B.
Haynes, J.
Hendren.
Hollander.
Ishizaka.
Latane.
Moore, H. L.
Sparks, F. E.
Stevenson.
Takaki.
Thomson, F. D.
Wetzel.
Whealton.

European History: Dr. Vincent. Wednesday, Thursday, and Friday, 11 a. m. (19).

Ballagh, W. W.
Bansemer.
Brown, L.
Coblens.
Emerich.
Foster.
Greenbaum.
Harvey.
Hubner.
Kaufman.
Kilvert.
Oliver.
Parker, J. D.
Riley.
Robinson.
Rusk.
Stiles.
Umstadter.
Williams, W. W.

Mediæval and Modern History: (*P. H. E.*): Dr. Vincent. Wednesday, Thursday, and Friday, 12 m. (44).

Adams, T. S.
Beatty.
Bentley.
Binswanger.
Block.
Bowlus.
Caspari.
Clark, C. C.
Collier.
Diehl.
Downin.
Eldridge.
Gantz.
Gassman.
Graham.
Harden.
Hendrickson.
Johnson, F. H.
Knight.
Kurrelmeyer.
Lacy.
Lanahan.
Lilly.
Luchs.
Machen.
Marine.
McCornick, C. K.
McCornick, W. S.
Parker, H. P.
Ritchie.
Rosenbaum.
Schmeckebier.
Sioussat.
Stevens, A. R.
Sumwalt.
Thomas, R.
Torsch.
Trippe.
Upshur.
Wallis.
Ware.
Warfield.
Welbourn.
West, J. M.

Social Science Conference: Dr. D. I. Green. Alternate Wednesdays, 4 to 5.30 p. m. (16).

Bowers.
Bryan.
Bump.
Chapman.
Crane.
Hall, A. C.
Haynes, J.
James, B. B.
Jones.
Meriwether.
Moran.
Reizenstein.
Takaki.
Thomson, F. D.
Wetzel.
Whealton.

Greek and Roman History: Dr. Kriehn. Tuesday, Wednesday, Thursday, and Friday, 9 a. m. (11).

Dorsey, W. R.
Eldridge.
Harden.
Lilly.
Marmor.
McCornick, C. K.
Ritchie.
Rosenbaum.
Schmeckebier.
Torsch.
Warfield.

Thucydides: (*In translation*): Dr. Kriehn. Monday, 9 a. m. (15).

Adams, T. S.
Dorsey, W. R.
Eldridge.
Harden.
Lilly.
Luchs.
Marmor.
McCornick, C. K.
Ritchie.
Rosenbaum.
Schmeckebier.
Torsch.
Trippe.
Warfield.
Welbourn.

Philosophy. (61 Students).

History of Philosophy: Professor Griffin. Friday, 4 p. m., Room 24, Physical Laboratory. (18).

Arnold, B. W.
Arnold, H. L.
Cooley.
Furst.
Hendren.
Hunt, R. D.
James, B. B.
Lehmer.
Schmidt.
Sewall.
Silver.
Takaki.
Thomas, T. P.
Thompson, A.H.
West, C. J.
West, H. S.
Wetzel.
Whealton.

Psychology: (*L. E. P.*): Professor Griffin. Daily, until April 1, (Tuesdays during January and February, lectures and demonstrations on the Nervous System by Dr. Dreyer); ***Ethics:*** Daily, after April 1. 11 a. m., Lecture Room, Physical Laboratory. (43).

Ames, J. G.
Baer.
Baker, A. E.
Baumgarten.
Baxter.
Becker.
Benson.
Cameron, T. F. P.
Cohen, M. S.
Cone.
Conrad.
Cox.
Crane.
Dawson.
Frank.
Griffin, N. E.
Griswold.
Hastings.
Hauser.
Krafft.
Magruder, E. P.
Marmor.
Marshall.
Maynard.
Miles.
Morison, N. H.
Nitze, W. A.
Piper.
Post.
Purnell.
Reizenstein.
Rutter.
Stein.
Strickler.
Thom.
Trull.
Tudor, C. G.
Tyson.
Uhler.
Whitfield.
Wickes.
Wingert.
Wood, C. C.

Drawing. (98 Students).

Constructive and Perspective Drawing: Mr. Whiteman. Tuesday and Wednesday, 2–5 p. m. (68).

Adams, T. S.
Allen.
Beatty.
Bentley.
Binswanger.
Block.
Bowlus.
Caspari.
Clark, C. C.
Conrad.
Deutsch.
Diehl.
Dorsey, W. R.
Downin.
Eisenbrandt.
Eldridge.
Emerich.
Gantz.
Gassman.
Gordon.
Graham.
Griffin, N. E.
Griswold.
Harden.
Harriman.
Hendrickson.
Hill, M.
Hodges.
Johnson, F. H.
Kennard.
Killmon.
Knight.
Krafft.
Kurrelmeyer.
Lackey.
Lacy.
Lanahan.
Lilly.
Luchs.
Machen.
Marine.
Marshall.
McCaskell.
McCornick, C.K.
McCornick, W.S.
Nelson.
Page.
Parker, H. P.
Powell.
Reeder.
Ritchie.
Rosenbaum.
Schwab.
Schmeckebier.
Singewald.
Sloussat.
Stevens, A. R.
Sumwalt.
Thomas, J. H.
Thomas, R.
Torsch.
Trippe.
Upshur.
Wallis.
Ware.
Warfield.
Welbourn.
West, J. M.

Special Instruction: Mr. Whiteman. Tuesday and Wednesday, 2–5 p. m. (2).

Gray, G. H.
King.

Mechanical Drawing: Mr. Geer. Monday, Tuesday, Thursday, and Friday, 2–5 p. m. (28).

Anderson, W. P.
Bateman.
Bissing.
Boude.
Brackett.
Branch, B. H.
Corning.
Cottman.
Darrell.
Elder.
Hains, P. C.
Hayes.
Hill, G. H.
Maccoun.
McCrosky.
McIver.
Mullen.
Norris, H. H.
Penniman.
Randolph.
Ridgley.
Roberts, F.
Smoot.
Straus.
Taylor, J. S.
Thomas, F. McS.
White.
Wilcox.

PROFESSOR JEBB'S LECTURES ON THE GROWTH AND INFLUENCE OF CLASSICAL GREEK POETRY.

In the forthcoming number of the *American Journal of Philology* (XV, 1), the Editor says:

"All that Professor Jebb had to fear in undertaking the course of lectures which he delivered in the Spring of 1892 on the Percy Turnbull Memorial Foundation, was the unavoidable comparison with himself. But from that comparison with himself he has come forth with his wonted triumphant adequacy, and his lectures on the *Growth and Influence of Classical Greek Poetry* (Boston: Houghton, Mifflin & Co.) exemplify all that he has to say about 'Hellenic clearness of outline,' 'Hellenic obedience to the sense of measure and harmony.' He has said the best things in the best way; and while the best things are inevitable and must be said over again, unless one is content to fall into mere paradox, still those who know the ground traversed by Professor Jebb will welcome new angles of vision and new touches of color which are gained by his guidance. His style is limpid but does not lack strength. His rare figures illuminate his theme and do not interpose a screen of impertinent imagery between the student and the study. Especially admirable is the way in which he has solved the difficult problem of such a poet as Pindar. Instead of rising to Pindaric or pseudo-Pindaric heights in the characteristic of the Songs of Victory, he leads the reader up to the point at which he can enjoy the poet himself, and then makes way for a felicitous rendering of Pindar's splendid diction, and Pindar is made responsible for his own intoxication. As is well known, not only is Professor Jebb a close student of Pindar but he has himself handled Pindaric forms with unequalled mastery; and yet he is no stranger to the charms of Simonidean simplicity, and an epigram which has this Simonidean simplicity opens the volume."

Then follows the epigram itself, with an anonymous version in English:—

In Memoriam.

PERCY GRAEME TURNBULL.

NATUS EST MAII DIE VICESIMO OCTAVO A. D. MDCCCLXXVIII.

OBIIT FEBRUARII DUODECIMO A. D. MDCCCLXXXVII.

οἷα πρὶν ἀνθῆσαι ῥόδον ὄλλυται, ἐξεμαράνθης,
εἴαρος οὐδ' ἐνάτου βηλὸν ἀμειψάμενος.
σοῦ δὲ χάριν Μούσαις, ὁσάκις φάος ἔρχεται ἦρος,
δῶρα παρ' εὐσεβέων προσφέρεται γονέων.

Like as a rose that ere it flow'r is lost,
So didst thou fade away,
The threshold of thy ninth spring not yet crossed.
But for thy sake do they,
Thy loving parents, to the Muses bring,
As often as returns the light of spring,
A pious offering.

Another translation is given in *The Spectator*, London, January 27, 1894, as follows:

"Thou fadest, as a rose before it flowers,
Ere thy ninth spring; but when the spring-tide flowers
Year after year return, for thy sweet sake
Thy parents to the muse this offering make."

PERCY TURNBULL MEMORIAL LECTURESHIP.

The fourth course of lectures on this foundation will be given by Charles Eliot Norton, Litt. D., LL. D., Professor of the History of Art in Harvard University.

The subject of this course will be "Dante." The lectures will be given in Levering Hall, at 5 o'clock, beginning Thursday, March 29.

Special Topics.

I. The Function of Poetry. The Thirteenth Century in Italy. Thursday, March 29.
II. The New Life. Friday, March 30.
III. The Prose Works of Dante and their Relation to the Divine Comedy. Monday, April 2.
IV. The Divine Comedy: Hell. Wednesday, April 4.
V. The Divine Comedy: Purgatory. Friday, April 6.
VI. The Divine Comedy: Paradise. Monday, April 9.

LECTURES ON EDUCATION.

A course of lectures on educational topics was given on Saturday mornings in February and March. The lecturers and their subjects were as follows:

I. Professor Greene. The Place of English in College Education.
II. Professor Remsen. The Chemical Laboratory.
III. President Gilman. The Necessity for Liberal Education.
IV. Professor Newcomb. The Study of Mathematics.
V. Dr. Rambeau. The Study of Modern Languages in Schools and Colleges.
VI. Professors Welch, Abel, and Howell. Recent Advances in Medical Instruction.
VII. Professor Griffin. Some Recent Books of Interest to Students of Education.

HOURS FOR LECTURES AND RECITATIONS, SECOND HALF-YEAR, 1893-94.

Hours.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
A. M. 9	Elliptic Functions. (Craig.) Gen. Chem.: Minor. (Renouf.) Carbon Compounds: Adv. (Remsen.) Chemistry: Major. (Randall.) Latin Composition. (Smith.) Middle High German. (Learned.) Analytic Geometry: Major. (Franklin.) Palaeontology. (Clark.) Astronomy: Adv. (Poor.) Modern Greek. (Soho.) Thucydides. (Kriehn.) French: Minor B. (De Haan.) French: Minor. (Rambeau.) Botany. (Lotsy.) Electrical Seminary.	Elliptic Functions. (Craig.) Gen. Chem: Minor. (Renouf.) Carbon Compounds: Adv. (Remsen.) Chemistry: Major. (Randall.) Horace. (Smith.) German Literature. (Wood.) Italian. (Menger.) Analytic Geometry: Major. (Franklin.) Electricity. (Duncan.) Palaeontology. (Clark.) Astronomy: Adv. (Poor.) Aristotle. (Miller.) History: Minor. (Kriehn.) French: Minor B. (De Haan). French: Minor. (Rambeau).	Mathematical Seminary. (Craig.) Gen. Chem.: Minor. (Renouf&Randall.) Carbon Compounds: Adv. (Remsen.) Chemistry: Major. (Morse.) Horace. (Smith.) Gothic. (Wood.) Italian. (Menger.) Analytic Geometry: Major. (Franklin.) Electricity. (Duncan.) Palaeontology. (Clark.) Astronomy: Adv. (Poor.) History: Minor. (Kriehn.) French: Minor B. (De Haan.) French: Minor. (Rambeau.) Theory of Consumption. (Sherwood.)	Elliptic Functions. (Craig.) Gen. Chem.: Minor. (Renouf & Randall.) Carbon Compounds: Adv. (Remsen.) Chemistry: Major. (Morse.) Horace. (Smith.) Gothic. (Wood.) Spanish. (De Haan.) Differential Equn. (Hulburt & Landis.) Electricity. (Duncan.) Syntactical Society. (Miller.) History: Minor. (Kriehn.) French: Minor B. (Bonnotte.) French: Minor. (Rambeau.) Theory of Consumption. (Sherwood.) Botany. (Lotsy.)	Elliptic Functions. (Craig.) Gen. Chem.: Minor. (Renouf&Randall.) Carbon Compounds: Adv. (Remsen.) Chemistry: Major. (Morse.) Horace. (Smith.) German Seminary. (Wood.) Italian. (Menger.) Differential Equa. (Hulburt & Landis.) Electricity. (Duncan.) Aristotle. (Miller.) History: Minor. (Kriehn.) French: Minor B. (De Haan.) French: Minor. (Bonnotte.) Social Economics. (Gould.)	Latin: Journal Club. (Warren.) (Alternate Saturdays.) Chemistry: Journal Meeting. Botany. (Lotsy.)
10	Greek Seminary. (Gildersleeve.) Physical Optics. (Rowland.) Jurisprudence. (Emmott.) Physics: Minor. (Ames.) General Biology. (Andrews.) Theory of Numbers. (Franklin.) Latin Composition. (Smith.) German: Major. (Wood.) French: Major. (Rambeau.) Physiological Seminary. (Howell.) English Literature. (Greene.) Old French Phonology. (Menger.)	Greek Philosophy. (Gildersleeve.) Physical Optics. (Rowland.) Jurisprudence. (Emmott.) Physics: Minor. (Ames.) General Biology. (Andrews.) Theory of Probability. (Franklin.) Terence and Plautus. (Warren.) German: Major. (Vos.) French: Major. (Bonnotte.) Physiological Seminary. (Howell.) English Literature. (Greene.) Old French Texts. (Menger.)	Greek Seminary. (Gildersleeve.) Prussian History. (Adams.) Physics: Minor. (Ames.) General Biology. (Andrews.) Metamorphism. (Williams.) Theory of Numbers. (Franklin.) Terence and Plautus. (Warren.) German: Major. (Learned.) French: Major. (Rambeau.) English Literature. (Greene.) Old French Phonology. (Menger.) Electrical Seminary.	Plato. (Gildersleeve.) Physical Optics. (Rowland.) Prussian History. (Adams.) Physics: Minor. (Ames.) General Biology. (Andrews.) Metamorphism. (Williams.) Theory of Probability. (Franklin.) Latin: Sight Reading. (Smith.) German: Major. (Learned.) French: Major. (Rambeau.) English Literature. (Greene.) Old French Texts. (Menger.) Algebraic Curves. (Hulburt.)	Epic Poetry. (Gildersleeve.) Physical Optics. (Rowland.) English History. (Emmott.) Physics: Minor. (Ames.) General Biology. (Andrews.) Metamorphism. (Williams.) Theory of Numbers. (Franklin.) Terence and Plautus. (Warren.) German: Major. (Wood.) French: Major. (Rambeau.) English Literature. (Greene.) Old French Exercises. (Menger.) Algebraic Curves. (Hulburt.)	
11	Greek Composition. (Spieker.) German: Minor. (Learned.) Theory of Functions. (Craig.) English: Minor. (Browne.) Church History. (Adams.) Biology: Jour. Club. (Brooks & Howell.) Latin: Practical Exercises. (Smith.) Astronomy. (Poor.) Psychology and Ethics. (Griffin.) German: Minor B. (Vos.) Social & Economic Europe. (Vincent.) Kinematics. (Geer.) Steam Engineering. (Hering.) Spanish Philology. (Elliott.) General Geology. (Clark.) German Seminary. (Wood.)	Homer and Euripides. (Spieker.) German: Minor. (Learned.) Theory of Functions. (Craig.) English: Minor. (Browne.) Church History. (Adams.) Morphological Seminary. (Brooks.) Latin Seminary. (Warren.) Astronomy. (Poor.) Psychology and Ethics. (Griffin.) German: Minor B. (Vos.) Social & Economic Europe. (Vincent.) Kinematics. (Geer.) Steam Engineering. (Hering.) Spanish Philology. (Elliott.) General Geology. (Clark.) German Seminary. (Wood.)	Homer and Euripides. (Spieker.) German: Minor. (Wood,) English: Minor. (Browne.) Continental Hist. (Vincent.) Principles of Zoology. (Brooks.) Latin Palaeography. (Warren.) Astronomy. (Poor.) Psychology and Ethics. (Griffin.) German: Minor B. (Vos.) Physics: Jour. Meet. (Rowland & Ames.) Physiology. (Howell.) Laboratory Methods. (Hering.) Popular Latin. (Elliott.) Amer. Polit. Hist. (Schouler.) General Geology. (Clark.) Modern Greek. (Soho.)	Homer and Euripides. (Spieker.) German: Minor. (Learned.) English: Minor. (Browne.) Continental Hist. (Vincent.) Principles of Zoology. (Brooks.) Hist. Latin Grammar. (Warren.) Differential Equations. (Craig.) Psychology and Ethics. (Griffin.) German: Minor B. (Vos.) Theory of Attractions. (Ames.) Romance Seminary. (Elliott.) Amer. Polit. Hist. (Schouler.) Economic Literature. (Sherwood.) German Seminary. (Wood.)	Homer and Euripides. (Spieker.) German: Minor. (Learned.) English: Minor. (Browne.) Continental Hist. (Vincent.) Principles of Zoology. (Brooks.) Latin Seminary. (Warren.) Differential Equations. (Craig.) Psychology and Ethics. (Griffin.) German: Minor B. (Vos.) Theory of Attracti[illegible]. (Ames.) Italian Literature. (Menger.) (Alternate Fridays.) Amer. Polit. Hist. (Schouler.)	
M. 12	Physics: Major. (Ames.) Greek Composition. (Spieker.) French: Minor. (Rambeau.) English: Major. (Bright.) American Constitution. (Steiner.) Rhetoric: P. H. E. (Greene.) Mineralogy. (Williams.) Zoology. (Andrews.) New High German. (Learned.) Romance Club. (Elliott.)	Physics: Major. (Ames.) Greek: Major. (Spieker.) French: Minor. (Rambeau.) English: Major. (Browne.) American Constitution. (Steiner.) Rhetoric: P. H. E. (Greene.) Mineralogy. (Williams.) Zoology. (Andrews.) French: Minor B. (Symington.) English Philology. (Bright.) Sanskrit. (Stratton.)	Physics: Major. (Ames.) Greek: Major. (Spieker.) French: Minor. (Rambeau.) English: Major. (Bright.) English Constitution. (Emmott.) History: P. H. E. (Vincent.) Mineralogy. (Williams.) Physiology. (Howell.) Caroline Poets. (Browne.) New High German. (Learned.) Spanish Literature. (De Haan.)	Physics: Major. (Ames.) Greek: Major. (Spieker.) French: Minor. (Rambeau.) English: Major. (Browne.) English Constitution. (Emmott.) History: P. H. E. (Vincent.) Mineralogy. (Williams.) Physiology. (Howell.) Middle English Texts. (Bright.) Economic Literature. (Sherwood.) Romance Seminary. (Elliott.)	Physics: Major. (Ames.) Greek: Major. (Spieker.) French: Minor. (Bonnotte.) English: Major. (Browne.) American Constitution. (Steiner.) History: P. H. E. (Vincent.) Physiology. (Howell.) French: Minor B. (Symington.) Middle English Gram. (Bright.) Sanskrit. (Bloomfield.)	Geology: Journal Meeting. (Williams and Clark.)
P. M. 1	Calculus. (Hulburt and Landis.) Polit. Econ.: Minor. (Sherwood.)	Calculus. (Hulburt and Landis.) Polit. Econ.: Minor. (Sherwood.) Zend. (Bloomfield.)	Calculus. (Hulburt and Landis.) Polit. Econ.: Minor. (Sherwood.) Greek: Sight Reading. (Spieker.)	Calculus. (Hulburt and Landis.) Polit. Econ.: Minor. (Sherwood.) French: Minor B. (Symington.)	Calculus. (Hulburt and Landis.) Polit. Econ.: Minor. (Sherwood.)	
2	Mech. Drawing. (Geer.) Analytic Geometry: Elem. (Manning.)	Drawing. (Whiteman.) Mech. Drawing. (Geer.)	Drawing. (Whiteman.) Analytic Geometry: Elem. (Manning.)	Mech. Drawing. (Geer.)	Mech. Drawing. (Geer.)	
3	Elementary Hebrew. (Haupt.) Hist. German Grammar. (Vos.) Mech. Drawing. (Geer.)	Assyrian. (Johnston.) English Seminary. (Bright.) Drawing. (Whiteman.) Mech. Drawing. (Geer.) Spanish. (De Haan.)	Arabic Exercises. (Johnston.) Hist. German Grammar. (Vos.) Drawing. (Whiteman.)	English Seminary. (Bright.) Mech. Drawing. (Geer.)	Hebrew Exercises. (Johnston.) Hist. German Grammar. (Vos.) Mech. Drawing. (Geer.) Analytic Geometry: Elem. (Manning.)	
4	Comparative Philol. (Bloomfield.) Leviticus. (Haupt.) Mech. Drawing. (Geer.)	Sanskrit: Elem. (Bloomfield.) Assyrian. (Johnston.) English Seminary. (Bright.) Drawing. (Whiteman.) Mech. Drawing. (Geer.) Projective Geometry. (Study.)	Comparative Grammar. (Bloomfield.) Theoretical Astronomy: Adv. (Poor.) Drawing. (Whiteman.) Social Science Conference. (D. I. Green.) (Alternate Wednesdays.)	Vedic Seminary. (Bloomfield.) Assyrian Seminary. (Haupt.) English Seminary. (Bright.) Mech. Drawing. (Geer.) Projective Geometry. (Study.)	Sanskrit: Elem. (Bloomfield.) Elementary Arabic. (Johnston.) History of Philosophy. (Griffin.) Quantitative Methods. (Morse.) Mech. Drawing. (Geer.)	
5	Hebrew Comp. } (Haupt.) (Alt. Mon.) Arabic Comp. } Hist. and Scientific German. (Vos.) English Journal Meeting. (Bright.) (8 p. m. Alternate Mondays.)	Ancient East. (Johnston.)	Physical Seminary. (Ames.) (7.30.) Astronomical Seminary. (Poor.)	Elementary Hebrew. (Haupt.) Germanic Society. (Wood.) (8 p. m. Alternate Thursdays.) Hist. and Scientific German. (Vos.) Seminary of Hist. and Politics. (Adams.) (8 p. m. Alternate Thursdays.)	Hexateuch. (Haupt.) Economic Conference. (Sherwood.) (8 p. m. Alternate Fridays.)	Historical Conference. (Vincent.) (8 p. m. Alternate Saturdays.)

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—— Verzeichniss der Abkürzungen.
—— Makkûxu oder makkûru.
Hommel, Fritz, Über den Grad der Verwandtschaft des Altägyptischen mit dem Semitischen.
Jäger, Martin, Der Halbvocal *i̯* im Assyrischen.
—— Das babylonische Hiatuszeichen.
—— Assyrische Räthsel und Sprichwörter.
Jeremias, Johannes, Die Cultustafel von Sippar.
Knudtzon, J. A., Textkritische Bemerkungen zu Lay. 17. 18.
Kraetzschmar, Richard, Relativpronomen und Relativsatz im Assyrischen.
—— Die Präposition *ša* im Assyrischen.
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CONTENTS.

PAGE.
Commemoration Day, 1894, - - - - - - - - - - - - 39–46
  A Century of Comparative Philology, by Maurice Bloomfield, - - - 39
  Measurements of Precision, Considered in their Relation to the Condition of Man, by T. C. Mendenhall, - - - - - - - - - - 42
  Meeting of the Alumni Association in Baltimore, - - - - - - - 45
  Meetings of Alumni in San Francisco, Chicago, New York and Tokio, - - 46
Proceedings of Societies, - - - - - - - - - - - - 46
Death of Hon. Charles J. M. Gwinn, - - - - - - - - - - 47
Enumeration of Classes, Second Half-Year, 1893–94:—
  Mathematics and Astronomy, Physics, - - - - - - - - - 48
  Chemistry, Mineralogy and Geology, - - - - - - - - - 49
  Biology, Greek, Latin, - - - - - - - - - - - - 50
  Sanskrit, etc., Oriental Seminary, German, - - - - - - - - 51
  Romance Languages, English, - - - - - - - - - - - 52
  History and Politics, - - - - - - - - - - - - - 53
  Philosophy, Drawing, - - - - - - - - - - - - - 54
Current Notes, - - - - - - - - - - - - - - 54
Schedule of Hours, Second Half-Year, 1893–94, - - - - - - - - 55

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